A Dissertation on

"PSYCHIATRIC MORBIDITY AND QUALITY OF LIFE IN BRONCHIAL ASTHMA PATIENTS UNDERGOING TREATMENT IN TERTIARY CARE HOSPITAL"

Submitted to

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for the award of degree of

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GOVERNMENT STANLEY MEDICAL COLLEGE&HOSPITAL

THE TAMILNADU DR. M.G.R. MEDICAL UNIVERSITY,

CHENNAI, TAMILNADU

MAY 2018

CERTIFICATE

This is to certify that this dissertation entitled **"PSYCHIATRIC MORBIDITY AND QUALITY OF LIFE IN BRONCHIAL ASTHMA PATIENTS UNDERGOING TREATMENT IN TERTIARY CARE HOSPITAL"** submitted by **Dr. RENGANATHAN. S** to the faculty of PSYCHIATRY, The Tamil Nadu Dr. M.G.R. Medical University, Chennai, in partial fulfillment of the requirements in the award of degree of M.D. (PSYCHIATRY) Branch -XVIII for the May 2018 examination is a bona-fide research work carried out by him during the period of FEBRUARY 2016 to JULY 2016 at Government Stanley Medical College & Hospital, Chennai, under our direct supervision and guidance of **Prof Dr W J ALEXANDER GNANADURAI MD., DPM.,** Professor and Head of the department, Department of Psychiatry at Stanley Medical College, Chennai.

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This is to certify that this dissertation entitled **"PSYCHIATRIC MORBIDITY AND QUALITY OF LIFE IN BRONCHIAL ASTHMA PATIENTS UNDERGOING TREATMENT IN TERTIARY CARE HOSPITAL"** submitted by **Dr. RENGANATHAN. S** is an original work done in the Department of Psychiatry, Government Stanley Medical College and hospital, Chennai in partial fulfillment of regulations of The Tamil Nadu Dr.M.G.R. Medical University, for the award of degree of M.D. (PSYCHIATRY) Branch – XVIII, under my supervision during the academic period 2015-2018.

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DECLARATION

I, **Dr.RENGANATHAN.S** solemnly declare that the dissertation on **"PSYCHIATRIC MORBIDITY AND QUALITY OF LIFE IN BRONCHIAL ASTHMA PATIENTS UNDERGOING TREATMENT IN TERTIARY CARE HOSPITAL"**is a bona- fide work done by me during the period of April 2017 to September 2017 at Government Stanley Medical College and Hospital, under the expert supervision of Prof**. Dr.W.J.ALEXANDER GNANADURAI M.D., DPM.** Professor and Head of Department of Psychiatry, Government Stanley Medical College, Chennai. This thesis is submitted to The Tamil Nadu Dr .M.G.R. Medical University in partial fulfillment of the rules and regulations for the M.D. degree examinations in Psychiatry to be held in May 2018.

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CONTENT

TABLE

GRAPHS

ABBREVATIONS USED IN THIS STUDY

ACT-Asthma control test

ACQ-Asthma control questionnaire

AIDS-Acquired Immune Deficiency Syndrome

AQLQ-Asthma Quality of Life questionnaire

BDI-Beck Depression Inventory

BMI- Body Mass Index.

BTS-British Thoracic Society

CI- Confidential Interval

COPD-chronic obstructive pulmonary disease

DSM 4- Diagnostic and Statistical Manual of Mental Disorders 4

FEV1-forced expiratory volume 1

FEV1/FVC- Forced expiratory volume 1/forced vital capacity

FVC-forced vital capacity

FMD-Frequent Mental Distress

GAD-Generalized Anxiety Disorder

GINA-Global initiative for asthma

HAD- Hospital Anxiety and Depression scale

HAM-A Hamilton Rating scale for Anxiety

HRQoL - Asthma-specific Health related quality of life

HIV -Human Immune Deficiency Virus

ICS-Inhaled Cortico Steroid

ICD-10-International Classification of Diseases and related health problems-10

INSEARCH - Indian Council of Medical Research Study on Epidemiology of Asthma, Respiratory Symptoms and Chronic Bronchitis.

LAQ - Living with Asthma Questionnaire

MCS- Mental Component Score

NHIRD-Taiwan National Health Insurance Research Database

PEF- Peak Expiratory Flow.

PCS -Physical Component Score

PTSD-Post Traumatic Stress Disorder

SAS -Self-Rating Anxiety Scale

SDS -Self -Rating Depression Scale

SF-12-Short Form 12 Health Survey Questionnaire

SF-36-Short Form−36 questionnaire

SPSS-Statistical Package for the Social Sciences

S.T.A.I. -State Trait Anxiety Inventory

USA-United states of America

WHO - World Health Organization

INTRODUCTION

INTRODUCTION

Bronchial asthma is a controllable but incurable, chronic inflammatory lung disorder.Global initiative for asthma (GINA) recently defined Bronchial asthma as“a heterogeneous disease, characterized by chronic airway inflammation and associated airway hyper responsiveness. It is characterized by symptoms of wheeze, shortness of breath, chest tightness and cough that vary over time and in intensity, together with variable expiratory airflow limitation”

Asthma is characterized by variability of symptoms and airflow limitation over time and intensity.The variability of symptoms is caused by triggering factors such as physical exercise, allergen or irritant exposure, change in weather, or viral respiratory infection.

The symptoms are often worse at night or in early morning. Symptoms and airflow limitation may resolve spontaneously or in response to medication. Episodic flare-ups (exacerbations) of asthma may be life-threatening and carry a significant burden to patients and the community.

There are many **phenotypes**. Some of the common ones are:

1. *Allergic Asthma*: It often commences in childhood and is associated with a past and/or family history of allergic diseases such as eczema, allergic rhinitis, or food or drug allergy. The sputum examination reveals eosinophilic airway inflammation. It usually responds well to inhaled corticosteroid (ICS) treatment.

2. Non allergic Asthma: It often responds less to ICS.

3. *Late-onset Asthma*: It occurs particularly in women .The patient will be mostly nonallergic and they are relatively refractory to corticosteroid treatment.

4. *Asthma with fixed airflow limitation*: It is due to airway wall remodeling.

5. *Asthma with obesity*: They have prominent respiratory symptoms and little eosinophilic airway inflammation.

Asthma is diagnosed by variable expiratory airflow limitation, i.e. expiratory lung function varies over time and in magnitude to a greater extent than that of healthy populations. In the same individual, lung function varies between absolutely normal and severely obstructed. Uncontrolled asthma is associated with greater variability. Spirometry value of Forced Expiratory Volume in 1 second (FEV1) is more reliable than that of the Peak Expiratory Flow (PEF). A low FEV1 will be found

in many other pulmonary diseases (or poor Spirometric technique), but a low ratio of FEV1 to FVC indicates the airflow limitation. From population studies[1],the FEV1/FVC ratio is normally greater than 0.75 to 0.80, and usually greater than 0.90 in children. Values less than that of these suggest that there is airflow limitation.

There is overlap in bronchodilator reversibility and other measures of variation between health and disease.[2] Generally, in adult typical bronchial asthma patients, an increase or decrease of >12% and >200 mL in the value of FEV1 from baseline or at least 20% change in value of PEF(if spirometry is not available) is accepted as being consistent with asthma.

Other tests:

Bronchial provocation testing helps to assess airway hyperresponsiveness. The most established test is inhaled methacholine, but histamine, eucapnic voluntary hyperventilation, inhaled mannitol or exercise[3] may also be used. To diagnosis asthma ,these tests are moderately sensitive but have limited specificity[4,5]

Allergic status can be detected by skin prick testing or by measuring the level of specific immunoglobulin E (serum IgE) in serum. Even though measurement of Serum IgE is no longer reliable and more

expensive, it is preferable in uncooperative patients, those having skin disease, or those having of history suggestive of anaphylaxis[6].

ASSESSING ASTHMA SYMPTOM CONTROL;

Typically, asthma symptoms such as wheeze, shortness of breath, chest tightness and cough vary in frequency and intensity and contribute to the disease burden of the patient. There is also a strong association between poor symptom control of asthma and increased risk of asthma exacerbations.[7,8,9] Direct questioning is an important tool for assessing asthma symptom control at every opportunity, including at the time of routine prescribing or dispensing.

There are two Asthma symptom control tools for adults and adolescents

1 *Asthma Control Questionnaire (ACQ)*. The Score of this test ranges from 0–6 (high score is worse). A mean score of 0.0–0.75 is defined as well-controlled asthma; score 0.75–1.5 is a 'grey zone'; and score >1.5 is poorly controlled asthma. The ACQ score is estimated as the average of 5, 6 or 7 items: all versions of the ACQ include five symptom questions; ACQ-6 includes reliever use; and ACQ-7 includes a score for pre-bronchodilator FEV1 which is averaged with symptom and reliever items. The minimum clinically important difference is 0.5.[10,11,12]

2. Asthma Control Test (ACT). Scores range from 5–25 (high score is better). Scores of 20–25 are defined as well-controlled asthma; score 16–20 as not well-controlled; and 5–15 as poorly controlled asthma. It includes four symptom/reliever questions plus a patient self-assessed level of control. The minimum clinically important difference is 3 points.[13,14,15]

EPIDEMIOLOGY OF ASTHMA:

Around the world, according to WHO report, 100 to 150 million people suffers from asthma and there is a rising global death rate of over 1, 80,000 people per year[16].

A recent Indian Council Of Medical Research Study on Epidemiology of Asthma, Respiratory Symptoms and Chronic Bronchitis (INSEARCH) conducted in 12 urban and 11 rural sites in India among 85,105 men and 84,470 women reported a prevalence of 2.05%(2.28 in rural and 1.64 in urban areas)in persons above 15 years.The national burden of India was estimated as 18 millions[17]

Although, asthma is largely controllable, it tends to occur in epidemics and highly affects young people[16]. Asthma causes sleep disturbances, limitations in daily activities and lost work days. A high

annual financial burden is incurred by decreased quality of life due to lung function impairment unless disease control is achieved [18].

A chronic physical condition such as asthma causes either interference in daily functioning or increased hospital stay[19]. Even though it starts from the childhood it continues into adult hood because it is incurable. Hence, throughout a person's life, he or she may experience exacerbations similar to flares that can occur with depression and anxiety. Many medical conditions can present or be associated with psychiatric disorders. Sometimes these psychiatric disorders can be so prominent that they can overshadow the underlying pathophysiologic process of the medical condition. Patients with a chronic medical illness and comorbid psychiatric disorders report significantly more medical symptoms compared to those without psychiatric disorders. Many researches point a bidirectional effect between depression/anxiety and severity of the medical illness. Depression and anxiety may lead to increased awareness of physical symptoms. An exacerbation of physical condition and resulting functional impairment can lead to an episode of depression or anxiety. In turn, an exacerbation of anxiety and depression can worsen the physical symptoms associated with the medical illness such as asthma[20]

Various comorbid emotional states and stress increase oscillatory respiratory resistance largely independent of concurrent increases in ventilator or autonomic activity and make the patient susceptible for asthmatic exacerbations.[21] It can have impact on asthma control symptom perception and quality of life[22]which in turn significantlyincreases health care utilization and costs . Most of these costs are due to increase in non-mental health and non asthma expenses[23].

Asthma causes a loss of 15 million disability-adjusted life years annually, representing 1 percent of the total global disease burden[24].The human and economic burden associated with it, is severe and needs international and nationwide action.The estimated global economic costs associated with asthma are expected to exceed those of TB and HIV/AIDS combined[16].

Patients from developing and many underdeveloped countries have more severe symptoms than developed countries, possibly due to inadequate training and treatment practices to primary health professionals,[25,26] improper implementation of international guidelines,poor access to health care, the unaffordability of inhaled corticosteroid therapy,high exposure to environmental irritants and genetic susceptibility to more severe disease[27].

Lower educational level and lower socioeconomic groups are associated with a higher prevalence and incidence of asthma.[28]Patients from Urban area with low income are not getting enough social support and facing problem paying for health care. But there is a strong relationship between adequate social support and successful asthma self-management.[29]

An US based cross-sectional study **Grand *en et al*** *on* reviewing the mortality records of asthma patients from 1991 to 1996 reported that black race had higher asthma mortality independantly with low income and low education compared to whites.[30]

A German study, conducted by ***Goodwin RDet al***among 4181 asthmatic patients, reported that there is significant prevalence of psychiatric disorders, particularly depression and anxiety disorders and impaired quality of life.[31]The most introverted, shy persons have high prevalence and incidence of asthma, depression and anxiety.[32.]

A study conducted among 100 asthmatic patients, with and without family history of asthma (n-62and 38 respectively) revealed that 24 patients had anxiety symptoms. Among 24 patients, twenty-three (i.e, 96%) had family history of asthma[33].

A considerable association has been established between asthma and anxiety by literature reviews.[34,35,36.] Although anxiety is a normal reaction to severe dyspnea,[37] heightened anxiety may lead to both exacerbation of asthma and poor management. For example, it has been demonstrated that panic attack may trigger asthma severity through hyperventilation and cooling of airways[38].

On analyzing, The National Comorbidity Survey conducted in 1990–1992, among 8098 asthmatic respondents, an inverse association between socio economic status and depression and anxiety was found. The Epidemiologic Catchment Area Follow-up study conducted in 1993–1996 among 1920 East Baltimore also provided similar results[39].

REVIEW OF LITERATURE

REVIEW OF LITERATURE

DEPRESSION: A VIGNETTE

According to ICD – 10, an individual is said to be in depression when he/she suffers from typical symptoms of depressed mood, loss of interest and decreased energy that may lead to increased fatigability and decreased activity.

The various other symptoms are

(1) Decreased attention and concentration,

(2) Decreased self – esteem and self – confidence,

(3) Guilty feelings and worthlessness

(4) Negative view about the future,

(5) Self – harm or suicidal thoughts,

(6) Sleep disturbances,

(7) Lack of appetite.

Depression can be categorized in to mild, moderate and severe, according to the number of typical symptoms and the various other

symptoms persisting for about 2 weeks and cause significant impairment in social and occupational functioning.

Depression can occur alone or as a part of Bipolar disorder. If it occurs alone, then it is known as unipolar depression. Depression is more common in women than men with the ratio of 2 : 1. At least 25 % of the patients had one or more precipitating events. There is also a diurnal variation in the symptoms: the symptoms worse in the morning. Approximately 75% of depressed patients experienced sleep disturbances, either insomnia or hypersomnia. About 60 % of the depressed patients have suicidal ideation and 15% commit suicide.

ANXIETY: A VIGNETTE

Most of us have experienced the anxiety symptoms but for a definite diagnosis, it should be clinically significant, must be severe enough to cause significant distress, and / or it must markedly interfere in day–to–day functioning.

Anxiety is a state which has many effects. It influences the cognition and produces the perceptual distortions. There is a difference between fear and anxiety. In fear, there is an appropriate response to known threatening stimuli, where as in anxiety there is also a response to a threat which is not known, not certain or disagreeable.

Most of the symptoms of anxiety are dreadful which are accompanied with somatic complaints and autonomous nervous system hyperactivity such as tachycardia, palpitation, sweating, dry mouth or psychological symptoms like feeling of dread, difficulty in concentration, insomnia, decreased libido, lump in the throat (Globus Hystericus) and stomach upset (Butter flies).DSM-IV eliminated the term "Neurosis" in its diagnostic manual, but still it is retained in the ICD – 10, as Neurotic, stress related and somatoform disorders (F 40 – F 48).

MANY STUDIES REPORTED THE ASSOCIATION BETWEEN PSYCHIATRIC MORBIDITY (BOTH ANXIETY AND DEPRESSION) AND ASTHMA CONTROL AND QUALITY OF LIFE

In the year 2004, **Strine TW et al**[40] and his colleques conducted a study among adults (≥18 years) with asthma in 12 states in USA to investigate the association of frequent mental distress (FMD) (ie, in which respondents reported that their mental health was not good for > or = 14 days in the past 30 days) with modifiable risk behaviors (ie, smoking, physical inactivity, and obesity) and health-related quality of life. The study reported that FMD is highly prevalent (18.8%) among persons with asthma, suggesting an apparent synergistic effect of these two conditions. The FMD patients had poor general health, increased frequency of physical distress, frequent activity limitations, frequent

anxiety, and frequent insomnia on comparing with those who did not have.

Kim L. Lavoie et al [41] and his colleagues conducted a study at an asthma clinic at Montreal, Canada to evaluate impact of psychiatric disorder on asthma control and quality of life among 406 patients and reported that 34% had one or more psychiatric disorders. 25% of patients had one or more anxiety disorder, of which panic disorder was 12%, generalized anxiety disorder was 5%, social anxiety disorder- 4 %, and other anxiety disorders - 11%. Whereas 20% of patients had one or more mood disorders, of which major depressive disorder was 15% Minor depressive disorder - 5 %, Dysthymia 4% and Bipolar disorder 1%. It is a notable one that 36% of patients reported a lifetime history of panic attacks. Even though it reported no difference in pulmonary function between those with or without psychiatric disorders, those having psychiatric disorders were associated with impaired asthma control and poor quality of life.

In the year 2001, LD **Rimington et al**[42] conducted a multi-center cross sectional study in United kingdom (UK) among 114 patients (age range 16-60yrs) with minimum 6 months of asthma recruited by systematic sampling.Symptoms were assessed by means of the Asthma Quality of Life questionnaire (**AQLQ**) (scoring 1 to 7 and score <4--bad

or >4-good) and a locally devised **Q score** (<4-good control or >4-bad control), and Hospital Anxiety and Depression (**HAD**) scale. Spirometric values PEF and FEV1 were calculated.There was a trend towards more symptoms in the inner city patients i.e. 28% had a total AQLQ score of <4 compared with 13% suburban patients. 38% of inner city patients and 20% of suburban patients had a Q score of >4. About 30% of the patients were using higher doses of inhaled corticosteroids and/or other treatments. 52% were on low dose inhaled steroids and 18% were receiving inhaled bronchodilators only.Pulmonary function, as measured by PEF and FEV1%, correlated positively with the AQLQ symptom score and negatively with the Q score. Worse pulmonary function and higher levels of treatment were thus associated with more symptoms. HAD depression score and lesser extent anxiety score were negatively correlated with AQLQ and positively with Q score. HAD Depression weakly correlated with pulmonary function but HAD anxiety not have any correlation.

Urrutia I et al[43]conducted a cross-sectional study with 354 asthma outpatients at two hospitals in northern Spain and reported that 77% had partial or poor control of asthma, 31% had anxiety alone, 2% had depression alone, and 10% had both anxiety and depression. Poor asthma control was associated with anxiety plus depression as well as with

female gender. Anxiety had reduced quality of life in all domains independently.Anxiety and depression together had an even higher effect.

A German cross sectional study was conducted by **Antje Kullowatz et al**[44]and his colleagues in 88 asthma patients (46 women, age range 27–70 years) to asses anxiety, depression (HADS), general quality of life (SF-12) and asthmatic-specific quality of life (Living with Asthma, LAQ). 11% of patients had clinically significant levels of anxiety and 9% with depression. 57% of patients had family history of asthma. He reported that there was no significant association between anxiety and health care use. But there were significant associations between severe depression and number of hospital visits as well as number days of corticosteroid intake.There was also significant negative correlation between physical well-being and depression but not with anxiety.

Lavoie KL et al [45] and his colleagues evaluated the relative impact of having an anxiety and/or depression on asthma control and quality of life among 504 adults with asthma using structured interview for mental disorders, Juniper's Asthma Control Questionnaire (ACQ) and the Asthma Quality of Life Questionnaire (AQLQ) and reported that 8% had depression only, 12% had Anxiety only, and 11% had both. The study concluded that depression and anxiety are associated with poor

asthma-related quality of life, but only depression was associated with poor asthma control. But both combined depression and anxiety did not confer additional risk for poor asthma control or quality of life.

Sundbom F et al[46] and his colleagues conducted a study with 369 patients, aged 12-35 , to further analyze this correlation between asthma control and quality of life and identify other factors which impair asthma-related quality of life and investigate the covariance among these factors. Here the mini-Asthma Quality of Life Questionnaire (mAQLQ), asthma control test (ACT) and Hospital Anxiety and Depression Scale (HADS)] were used. The study reported that in addition to the significant correlation between impaired asthma control and poor quality of life, anxiety and depression also showed considerable additive effects on quality of life.

Katarzyna Lomper [47] et al conducted a cross sectional study with 96 Bronchial asthma patients recruited by consecutive sampling methods among adults aged 18 years or more to measure *asthma-related quality of life* (with SF-36- concerning two aspects of quality of life: physical and mental – lower scores indicate poor functioning) *severity of symptoms* (according to GINA guidelines 2012), and the level of asthma control (Asthma Control Test - controlled asthma- result

20 to 25 and uncontrolled asthma- below 20) .and *anxiety and depression* (with Hospital Anxiety and Depression Scale -HADS).

In controlled asthma, the study reported that there was a negative correlation between QoL (Quality of Life) and the level of depression. But there are no correlations between the level of anxiety and QoL (neither to PCS nor MCS domains). *In uncontrolled asthma*, anxiety and depression correlated negatively with the QoL (to both PCS and MCS domains) as well anxiety and depression were found to be highly severe in patients with uncontrolled asthma. Female sex, poor asthma control, severe asthma, smoking, as well as diagnoses of anxiety and depression are correlated significantly with lower QoL in asthma.

Flor-Eschriche etal[48]and his colleagues conducted a descriptive cross sectional study among 243 asthmatic patients aged 17 to 70 years to measure the quality of life [mini asthma quality of life questionnaire(mini-AQLQ)] and age, sex, anxiety, depression ,severity and control of asthma as associated co variable factors. He reported that the mean age of the participant was 44.5 years and most of them were females (71.2%).The overall score of mini AQLQ is 5.4 out of 7. In the multivariate analysis, the worst Quality of life score was statistically significant ($p<.05$)with poor control of asthma, severely depressed, educated less than secondary level and patients admitted to hospital

within 3 years and those using long term beta 2 agonist. Quality of life was negatively affected by severe and poor control of asthma and depression.

Wang L et al[49]conducted a study among 156 consecutive adults to investigate the association between psychiatric morbidity including depression [Hamilton depression scale (HAMD)] and anxiety [Hamilton anxiety scale (HAMA)] and level of asthma control[ACQ] and health related quality of life [AQLQ]. The study reported that 65 percent of patients had symptoms of either depression or anxiety (18% had depression, 5% had anxiety, and 42% had both) and concluded that depression but not anxiety, is significantly associated with worse asthma control and asthma-related quality of life. (Both $P<0.05$)

Heba Ibrahim elkeshishy et al[50] and his colleagues conducted a case control study with the sample of 40 adolescent females aged 13 to 17 years and 40 healthy controls at Saudi airlines hospital, Jeddah, Saudi Arabia and reported that depression, anxiety and poor life satisfaction were experienced more by asthmatic adolescents than those without asthma.

Hikmet Cobanet al[51]and his colleagues conducted a study in Turkey, among 174 asthma patients to evaluate asthma control, quality of

life and environmental stress and their relationship using ACT , AQLQ and HAD scales. The study reported that 33.3% had anxiety and 47.7% had depression. In the uncontrolled asthma patients, there was significantly higher anxiety and depression scores and lower quality of life scores. There was also poor asthma control and lower quality of life score in the anxiety and depression groups.

In 2011 **Aline Arlindo Vieira et al**[52] conducted a cross sectional study in Brazil,among 78 patients aged ≥ 18 years with confirmed diagnosis of moderate or severe asthma and under regular treatment with at least 6 months duration.The study reported that females (66%) were the predominant participants. 63% of the participants were classified as having uncontrolled asthma. The prevalence of anxiety and of anxiety with depression was significantly higher among uncontrolled than with controlled asthma patients but there were no differences between the two groups in terms of the prevalence of depression, spirometry results, or quality of life score.

Lavoie KLet al[53] conducted a cross-sectional study with 794 adult asthma patients to examine associations between Generalized Anxiety Disorder and asthma control, quality of life, and self-efficacy. 4% of the sample had GAD.The study reported that there was a significant association between GAD and poor asthma control,frequent

bronchodilator use , lower quality of life and poor self-efficacy. GAD was associated with worse asthma morbidity independent of age, sex, smoking, and asthma severity; however, comorbid major depressive disorder and poor asthma self-efficacy may account for many of these associations.

Mendes FA et al[54]and his colleagues conducted a study with 88 adult (20-60 years) asthmatic patients to confirm the association between aerobic capacity, quality of life, and psychological distress. The study reported that there was an association between reduced exercise capacity, low quality of life and increases in depressive symptoms.**Van Lieshout RJ et al**[55] reviewed and reported that treating the comorbid psychiatric disorders would improve quality of life in bronchial asthma patients.

Hyland ME et al[56] and his colleagues conducted a study among 23 patients with severe asthma to compare the burden of asthma and its treatment with asthma-specific Health related quality of life (HRQoL).The study reported that in addition to the treatment burden caused by symptoms, ten domains of oral corticosteroid impact on quality of life were identified: they were, Depression, irritability, sleep, hunger, weight, skin, gastric pain, disease anxiety and medication anxiety.

SOME STUDIES REPORTED THE ASSOCIATION OF SMOKING HISTORY, WITH PSYCHIATRIC MORBIDITY, ASTHMA CONTROL AND ASTHMA QUALITY OF LIFE.

Al-kalemji A et al[57]and his colleagues conducted a study to describe asthma related quality of life and investigate the impact of asthma severity, comorbid psychiatric disorders, smoking, obesity and demographic determinants. The study concluded that asthma severity, psychiatric comorbidity, female gender and smoking were identified to be major contributing factors to the decreased quality of life in asthmatics.

An USA study conducted by **Heather M. Ochs-Balcomet al**[58] and his colleagues identified an inverse association of depressive symptoms and pulmonary function in healthy adults especially in men and individuals with a heavy smoking history .

Ouellet K et al[59]conducted a study in 796 adult asthmatics to investigate the impact of cigarette smoking alone or along with anxiety or depression on the asthma control. The study interpreted that anxiety and depression was separately associated with poor asthma control but with the cumulative of cigarette smoking history, they were not associated with worse asthma control. Any how smoking cessation showed improved asthma control.

In his study, **Liam G. Heaney et al**[60]compared 68 difficult to control asthmatic (fatal and near fatal) patients with the subjects who responded to systematic evaluation and management. .Psychiatric morbidity was assessed based on ICD10, of which 49% had psychiatric illness.The most common psychiatric illness was depressive illnes (29 %) followed by generalized anxiety disorder. Depression and anxiety scores were significantly higher in asthmatics with psychiatric diagnosis commonly among current smokers. Patients identified as treatment-resistant asthma had significantly lower depression scores after treatment. This study concluded that difficult to control asthma patients had a high prevalence of undiagnosed psychiatric morbidity, particularly depression being the commonest one.

In the year 2006 **Laforest L et al**[61]reported that smoking and female gender were all independent determinants of inadequate asthma control.

SOME STUDIES REPORTED THE ASSOCIATION OF PSYCHIATRIC MORBIDITY AND ASTHMA CONTROL.

Fabiano Di Marco et al[62]and his colleagues conducted a cross sectional study at three tertiary care hospital in Italy,among 294 patients aged above 18 years, to analyze the correlation of anxiety and

depression, and level of asthma control. The study reported that a majority of the participants were female (67%) with higher levels of anxiety and depression, although FEV1% measurement and smoking history were not significant statistically. Patients with a poorly controlled asthma were found to be more anxious and/or more depressed in comparison to well controlled asthma patients. Depressed patients were found to be older and more frequently obese (BMI >30 Kg/m2). High healthcare utilization and frequent emergency care visit were common in patients with concomitant anxiety and depression.

Hanna Trzcińska et al [63] 2011 and her colleagues conducted a study among 128 randomly selected asthmatic individuals in Poland to determine the relationship between the level of asthma control and the prevalence of depression and anxiety. The study reported that depressed individuals had significantly lower degree of asthma control compared to depression-free individuals ($p<0.001$) and the degree of asthma control was decreased significantly with increasing severity of depression ($R=-0.367$; $p<0.001$). There was no significant correlation was between the degree of asthma control and levels of anxiety.

Krzysztof Gomuka et al[64]and his colleagues conducted a study among 120 hospitalized subjects i.e, 80 asthmatics and 40 controls in Poland to correlate degree of depression among bronchial asthma with

that of different intensity.In the study group, among patients with mild to moderate asthma, 62.5% showed no decreased mood, 37.5% persons had moderate depressive disorders but no one had severe depression. In the subgroup with severe asthma, 12.5% patients were classified as having severe depression, 45% persons as presenting mild depression, and 42.5% patients as being free from depressive disorders.There was a statistically significant correlation between the degree of depression and severity of bronchial asthma ($p = 0.046$).

Wang G et al[65] 2010 conducted a study among168 adult subjects ,having uncontrolled asthma and a positive result for airway hyper responsiveness in methacholine (Mch) challenge test .It showed that airway hyper responsiveness and psychological status are loosely related with each other even in uncontrolled asthma.

Katon WJ et al[36] on reviewed the literatures and found that one third of asthmatics met the criteria for comorbid anxiety.**Mai Leander et al[66]**and his colleagues conducted a study among 2270 subjects aged 20to 44 years (52% female) from Sweden, Iceland, and Norway to investigate the relationship between respiratory symptoms and psychiatric status and reported anxiety in 11%, depression in 2.5% and both anxiety and depression in 4% of the subjects. In participants with both depression and

anxiety, there was a strong association with respiratory symptoms, even after adjusting for confounding factors (ORs 1.33-1.94).

Cindy L Cooper et al[67] and his colleagues conducted an epidemiological survey of 872 adults with asthma, to identify the prevalence of anxiety, depression among them and to investigate whether there is a specific relationship between asthma and anxiety. The study established that there was high prevalence of anxiety (31.6%) and depression (13.6%) among adult asthmatics and also suggested that the relationship between anxiety and depression to asthma may be a part of a broader association between psychological distress and chronic illness rather than a specific one.

I baiardini et al [68]and his colleagues conducted a cross-sectional study among Sixty-three asthmatic outpatients and reported depression in 32.3% of patients and anxiety in 34.9%.

S.**centanni et al**[69] conducted comparative study in Italy: Of the 160 subjects, 80 were asthma patients, 40 were having chronic viral hepatitis B or C and the remaining 40 were healthy subjects. All were tested for anxiety and depression using S.T.A.I. (State Trait Anxiety Inventory) and Zung depression questionnaire. The study reported that anxiety and

depression levels were higher in asthmatic patients than the patients having chronic liver disease as well among healthy subjects.

Recently in the year 2016 **Sami AR Al-Dubai[70] et al** and his colleagues conducted a cross-sectional study in Malaysia with 202 bronchial asthmatics patients recruited by purposive sampling among consecutive adults aged 18 years or more to measure anxiety and depression using Hospital Anxiety and Depression Scale (HADS) . The study reported moderate anxiety in 24.3% depression in 21.3%, and severe form of anxiety in 4.4% depression in 3.5%.Factors associated significantly *with anxiety* were age of the patient(p=0.003) [a post-hoc test revealed that patients aged 50 years or older had greater anxiety (7.7 ± 3.4) as compared to patients aged 30 years (6.4 ± 1.7, p=0.002)]and employment status (p=0.004) [a post-hoc test revealed retired patients (8.2 ± 3.0) were more anxious as compared to working group of patients (6.5 ± 1.8,p=0.002)].

Factors associated significantly *with depression* were age(p=0.005) [a post-hoc test revealed that patients aged 50 years or more exhibited higher depression scores (6.7 ± 3.1) comparison to those aged less than 30 years(5.3 ± 2.2, p=0.004)]. Race(p<0.001)[post hoc tests showed that Indian patients exhibited higher depression (7.6 ± 2.7) in comparison to Chinese (5.3 ± 2.3, p<0.001)] ,monthly income **[** income of less than

MYR3000 had higher depression score (8.2 ±3.4) compared to those with higher income (5.5 ± 2.3; $p<0.001$)] and Employment status. ($p<0.001$), [a post-hoc test found students (7.4 ± 3.1) to be more depressed than employed patients (5.3 ±2.2, $p<0.001$)].

Shigang Liu et al[71] and his colleagues conducted a cross sectional study at Beijing, China, among 261 asthma patients aged 18 to 79 years to evaluate the relationship between asthma control and psychiatric disorder after excluding patients with acute asthma attack, alcohol or any drug abuse, pregnant or breastfeeding women, family history of mental illness and severe chronic medical comorbidities. Asthma control questionnaire (ACT), Self-Rating Anxiety Scale (SAS) and Self -Rating Depression Scale (SDS) were used. The study reported that there was a negative correlation between ACT and SAS ($r =-0.23$, $p< 0.05$) and also between ACT and SDS ($r =-0.28$, $p< 0.05$).The multivariate analysis result showed that smoking, uninsured, anxiety and depression were independent risk factors associated with poor asthma control.

Goodwin RD et al[72] and his colleagues conducted a longitudinal study to examine relationship between asthma, depression and anxiety disorders in a birth cohort of over 1000 young persons studied from birth to the age of 21 years. Asthma in youngsters was associated with increased likelihood of major depression, panic attacks and any anxiety

disorder compared with their counterparts without asthma in the community.

Yi-Chen Lee et al[73]and his colleagues conducted a retrospective cohort study in Taiwan to study the bidirectional relationship between asthma and anxiety among the 22,797 new asthma cases aged 16 or above defined between 2000 and 2007 and the same number of matched cohort from the remaining sample.The study reported that of the 45,594 subjects, 2792 had anxiety during a mean (SD) follow-up period of 5.3(2.5) years. Asthma, female sex, older age, rural residency, depressive disorder and prednisone use were independent risks on anxiety in the fully adjusted model. Anxiety, older age, rural residence, and prednisone use were independent risks on asthmain the fully adjusted model. The study confirmed bidirectional relationship between asthma and anxiety disorder, independent of a number of potential confounding factors.

Wang G et al[74] **2011** and his colleagues conducted a prospective cohort study with a 12-month follow-up period of 297 asthmatic patients to examine the relationship between current psychiatric symptoms and future risk of asthma outcomes. He measured exacerbations, unplanned visits, emergency visits, hospital admissions, intensive care unit admissions, and length of hospital stays for a month to assess asthma outcome.The study reported that anxiety and depression both

independently and combined predicted the future risk of asthma outcomes.

Neide Suzane Carvalho et al[75]and his colleagues conducted a study in Brazil. Among 189 patients, 140 patients had asthma and 49 had COPD. The anxiety symptoms were evaluated using the State-Trait Anxiety Inventory (STAI) and depression by BDI II. The prevalence of moderate or severe anxiety was significantly higher in asthmatic patients than those with chronic obstructive pulmonary disease ($p < 0.001$). The uncontrolled asthma group presented significantly higher rates of depressive symptoms than did the controlled asthma group ($p < 0.05$).

In the year 2015, **Li HL et al** [76]and his colleagues conducted a studyto investigate whether anxiety and depression were associated with greater respiratory discomfort in asthma and concluded that anxiety but not depression was associated with greater intensity of perceived dyspnea.

GAP IN THE LITERATURE

1. Most of the studies didn't measure duration of bronchial asthma and its relation to anxiety, depression, asthma control, quality of life.
2. There are fewer studies that assessed the presence and severity of depression in bronchial asthma patients on steroid therapy and also

the presence and severity of anxiety in bronchial asthma patients on steroid and beta2 agonist therapy.

3. There is no Indian study measuring anxiety, depression and quality of life in bronchial asthma patients.

This study measures the duration of illness, mode and duration of treatment, smoking, family history of anxiety and depression, hospital admission and number of visits.

HYPOTHESIS

It is hypothesized that asthmatics with comorbid psychiatric disorders will have poor asthma control and lower asthma-related quality of life.

AIMS AND OBJECTIVES

AIMS AND OBJECTIVES

IN BRONCHIAL ASTHMA PATIENTS

1. To assess the prevalence of anxiety and depression

2. To assess the quality of life

3. To assess the correlation of anxiety, depression and quality of life with the duration and level of control of illness.

MATERIALS AND METHODS

MATERIAL AND METHODS

STUDY DESIGN: Cross sectional descriptive study

STUDY SETTING:

This study is conducted at out- patient Department of Pulmonary Medicine in Government StanleyMedical College, Chennai.It is a tertiary care teaching Institute where patients come from northern part of Chennai, Tiruvallur District and from southern districts of Andhra Pradesh.

STUDY PERIOD:

6 Months.

STUDY POPULATION

The study population includes out patients attending Department of Pulmonary Medicine.Total of 100 patients were taken up for the study.

INCLUSION CRITERIA:

- Patients diagnosed as having bronchial asthma and registered in Pulmonary Medicine Out-Patient department.
- Age 18 years and above.

- Patients with equal to or more than 1 year duration of illness either on regular treatment or not.
- Those who gave informed consent.

EXCLUSION CRITERIA:

1. Those who did not give consent to participate.
2. Age below 18 years.
3. Patients with chronic medical illness like diabetes, systemic hypertension and thyroid disorders,cardiovascular, liver, kidney, nerve, blood disorders or tumor.
4. History of substance abuse except smoking.
5. Past history of any mental illness.
6. Women who were pregnant or breastfeeding.
7. Patient on severe asthma attack.

SAMPLING:

Consecutive cases from pulmonology department OPD who satisfied inclusion criteria were taken.

VARIABLES STUDIED:

SOCIO DEMOGRAPHIC VARIABLES- Age, Sex, Religion, Family, Residential status, Marital status, Education, Occupation, Income and Socio economic status.

CLINICAL VARIABLES–

1. **Asthma Related Factors**: Duration of illness, Smoking History, Current status of smoking, Family history of Asthma, Level of Asthma control, Spirometry measures---FEV1%, FVC%, FEV1/FVC%, Hospital visits, Hospital Admissions, Beta2 Agonists use and its form, Steroid use and its form, Xanthine / Deriphyllin use and its form, Leukotriene Receptor Antagonist use, Anti allergen use and its type .

2. **Psychiatric Illness Factors**: Family History of Anxiety, Anxiety level, Family History of Depression, Depression Level, Quality of life.

STUDY PROCEDURE

1. After obtaining informed consent from patients with Bronchial Asthma, diagnosed and registered in Pulmonary Medicine Out-Patient department, they were interviewed and assessed using various scales. Data was recorded for this purpose.

2. Information was obtained from patient, reliable informant, and from medical records.
3. Socio – demographic and medical details were obtained using a semistructured questionnaire designed for this study.
4. FEV1%,FVC%,FEV1/FVC% measures were obtained by doing spirometry

MATERIALS FOR THE ASSESSMENT

1. Socio – Demographic pro- forma sheet designed for this study.
2. Hamilton Rating scale for Anxiety (HAM-A).
3. Beck Depression Inventory (BDI).
4. Asthma Control Test (ACT)
5. Asthma Quality of Life Questionnaire (AQLQ)

THE HAMILTON RATING SCALE FOR ANXIETY[77] (HAM-A):

This is a clinician administered scale developed first to assess the severity of the symptoms.It measures the severity of symptoms in general not pertaining to any specific anxiety spectrum disorder.This scale consists of fourteen entities, each of the entity is graded as 0 to 4 (not present to severe), higher the scores means more severity. The total score

ranges from 0 – 56, and scores < 17 indicates mild severity, scores between 18 and 24 indicates mild to moderate severity, scores between 25 and 30 indicates moderate to severe anxiety symptoms, and total score more than 30 indicates very severe anxiety.HAM – A scale is a simple scale easy to administer within 20 to 30minutes. It is useful to monitor the improvement after initiation of drug treatment. This scale was translated in various languages, because of its high reliability.

BECK DEPRESSION INVENTORY (BDI)[78,79].

BDI is the gold standard tool to assess the depression severity. The original 21 item self rating BDI scale was developed by Beck *et al* in 1961.BDI – II, the revised version consists of 21 items, with a total score range of 0 – 84. Scores of 0 -10 is considered as normal.Due to its high reliability and internal consistency it is used in various studies. Since this scale is having the advantage of reduced time consumption, patient self-reporting model, and easy scoring it is a gold standard tool to assess the severity of depression.

ASTHMA CONTROL TEST (ACT)[14]

The patients were administered a 5-item questionnaire assessing their asthma symptoms, use of rescue medications, and the impact of asthma on daily life. In asthma control test, a score of 25 points indicated

full control, 20–24 points indicated controlled disease, 16–19 points indicated partial control, and score below 15 indicated uncontrolled disease. In statistical analysis, patients achieving a score higher than 20 were taken as a single group (full control), and patients achieving a score lower than 19 were taken as a separate group (partial control and uncontrolled)

ASTHMA QUALITY OF LIFE QUESTIONNAIRE (AQLQ)[80]

Asthma quality of life questionnaire (AQLQ) contains both interviwer and self administerated variety. The Interviewer administered questionnaire has four coloured response cards. The AQLQ measured the scores of the asthma patients regarding their symptoms (12 questions), restriction of activity (11 questions), emotional function (5 questions), and environmental exposure (4 questions). The responses to each question are scored one to seven (1 = maximum impairment and 7 = no impairment). The total score was recorded as the average of the scores of 32 questions and expressed as the meanscore per question. Low scores indicate a poor quality of life and high score indicate good quality of life. It contains validated Tamil translated version, obtained from the author and was used in this study.

SPIROMETRY[1,81,]

Trained personnel performed spirometry according to American Thoracic Society recommendations as previously reported. We first performed two to three slow practice manoeuvres followed by at least three but no more than eight manoeuvres, and used the best of the three acceptable manoeuvres for study. Approximately 18% of the sample who had a pulmonary function test performed were excluded from this study due to unacceptable results.

FEV1-It is the volume of air exhaled in the first second of the forcible expiration.

FEV1%-it means measured FEV1/predicted FEV1 multiplied with 100.

FVC- It is the volume expired forcibly during spirometry.

FVC%- measured FVC/predicted FVC multiplied with 100.

The predicted normal value depends on the subject's size, age, sex, and race. **FEV_1/FVC RATIO** -is generally expressed as a percentage (%). The amount exhaled during the first second is a fairly constant fraction of the FVC, irrespective of lung size. In the normal adult, the ratio ranges from 75 to 85%.

STATISTICAL ANALYSIS:

Statistical analysis was done using computerized software (SPSS-20). Descriptive statistics like frequencies, percentages, means and standard deviation were computed. Parametric and non-parametric analysis was done depending on the data collected.

RESULTS

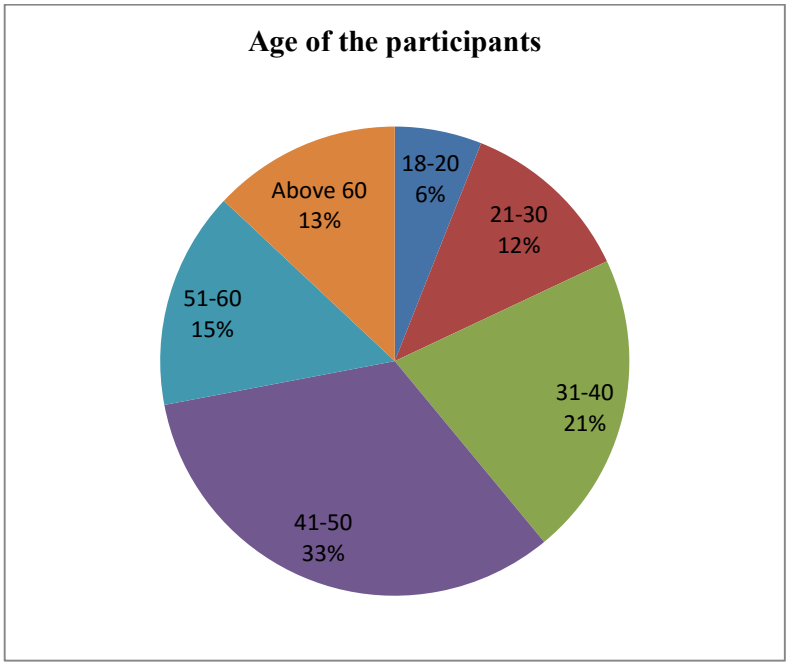
RESULTS

A study of 100 bronchial asthma patients undergoing treatment in tertiary care hospital has revealed the following findings.

SOCIODEMOGRAPHIC CHARACTERISTICS OF THE PARTICIPANTS

AGE OF THE PARTICIPANTS

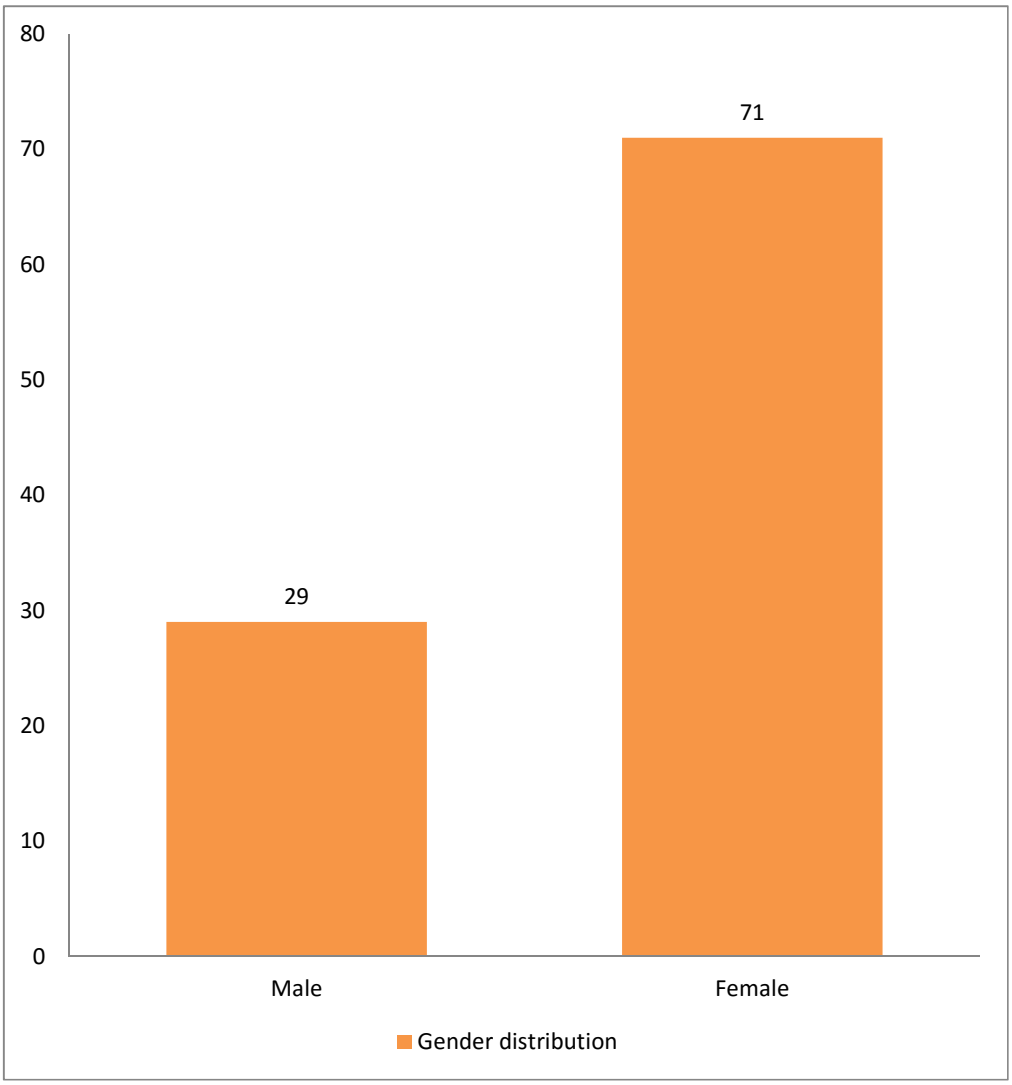
Figure 1: Age distribution of the participants



A larger part of the participants were in the age group of 41 to 50 years (33%) while only 6% of the respondents were between18 to 20 years of age.In the age group of 21-30 years were in 12%,31-40years in 21%,51to 60 years in 33% and above 60 years in 13%.

GENDER OF THE PARTICIPANTS

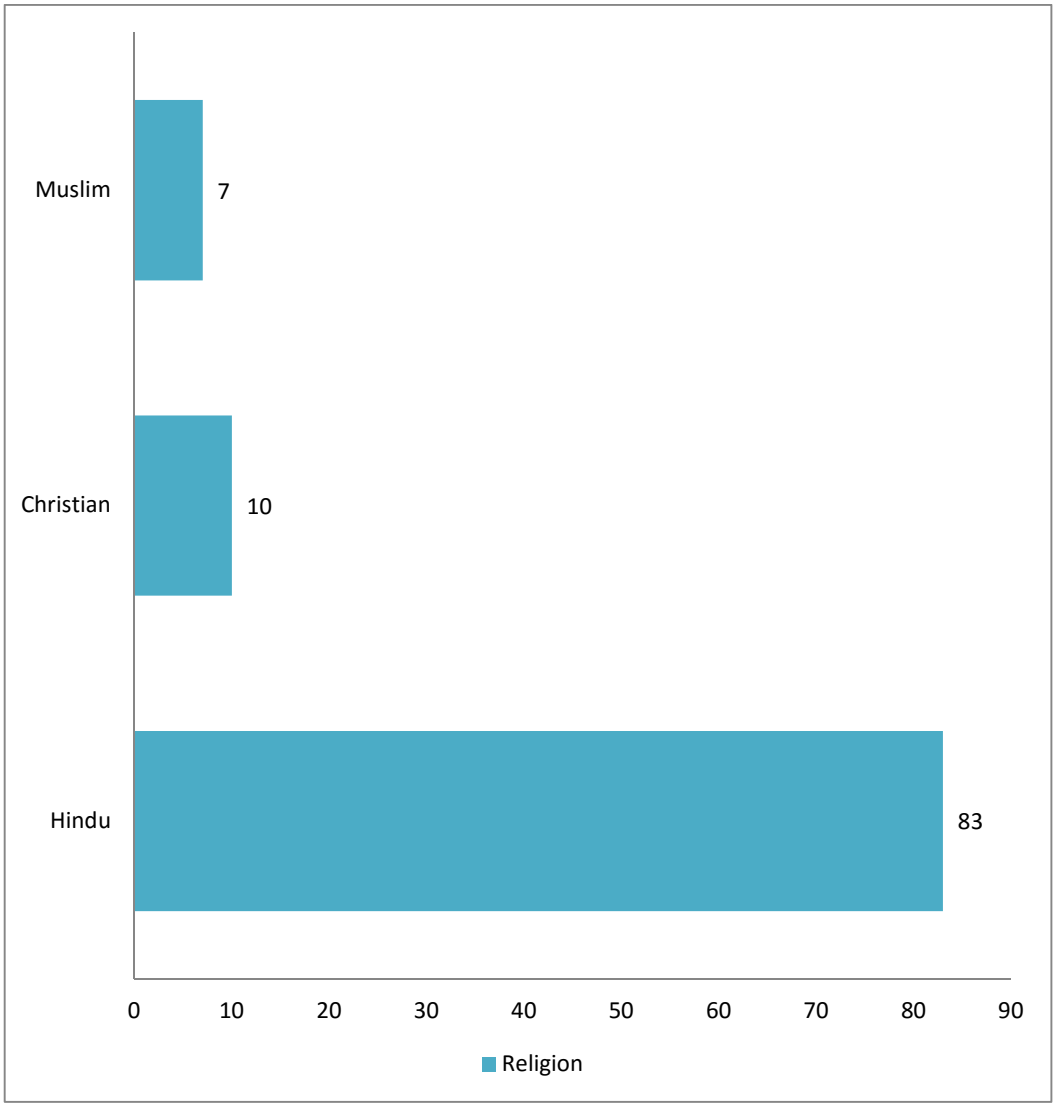
Figure 2: Gender distribution of the subjects under study



A greater part of the sample is occupied by females (71%).

RELIGION OF THE RESPONDENTS

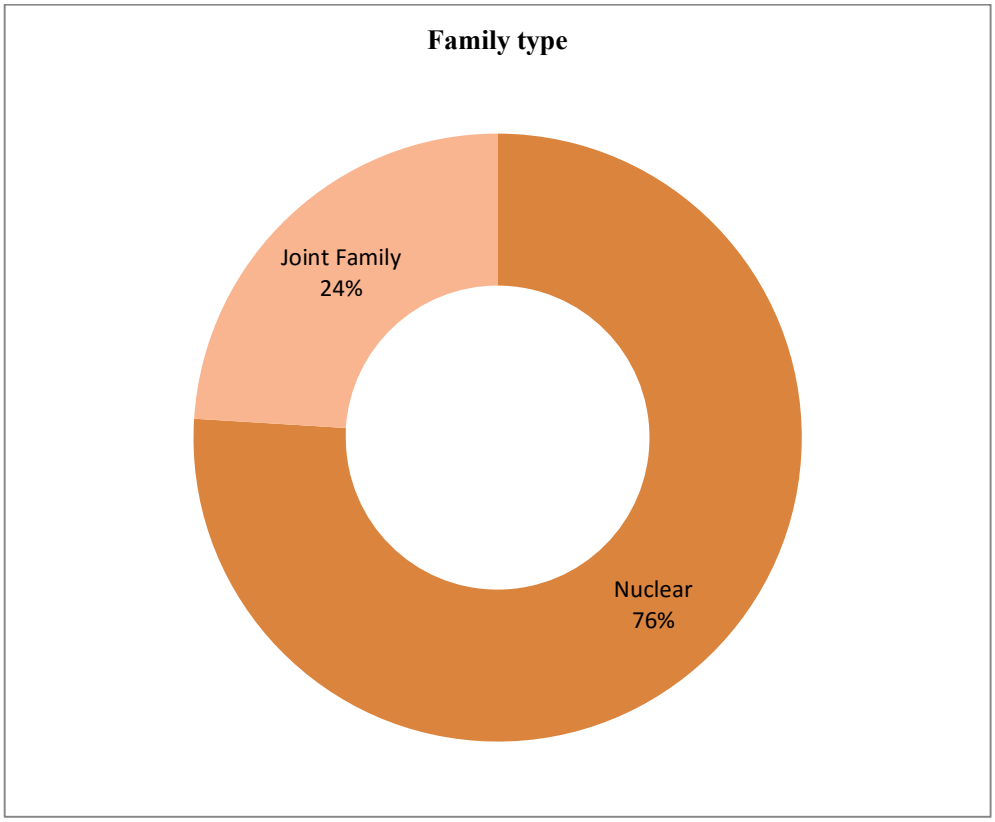
Figure 3: Religion of the respondents



A sizeable number of the participants were Hindus (83%) while Muslims (7%) were the least represented and Christians were 10%.

FAMILY TYPE

Figure 4-family type of the participants



Most of the participants (n=76) had nuclear families at the time of the study.

RESIDENCE OF THE SUBJECTS UNDER STUDY

Figure 5: Type of residential area

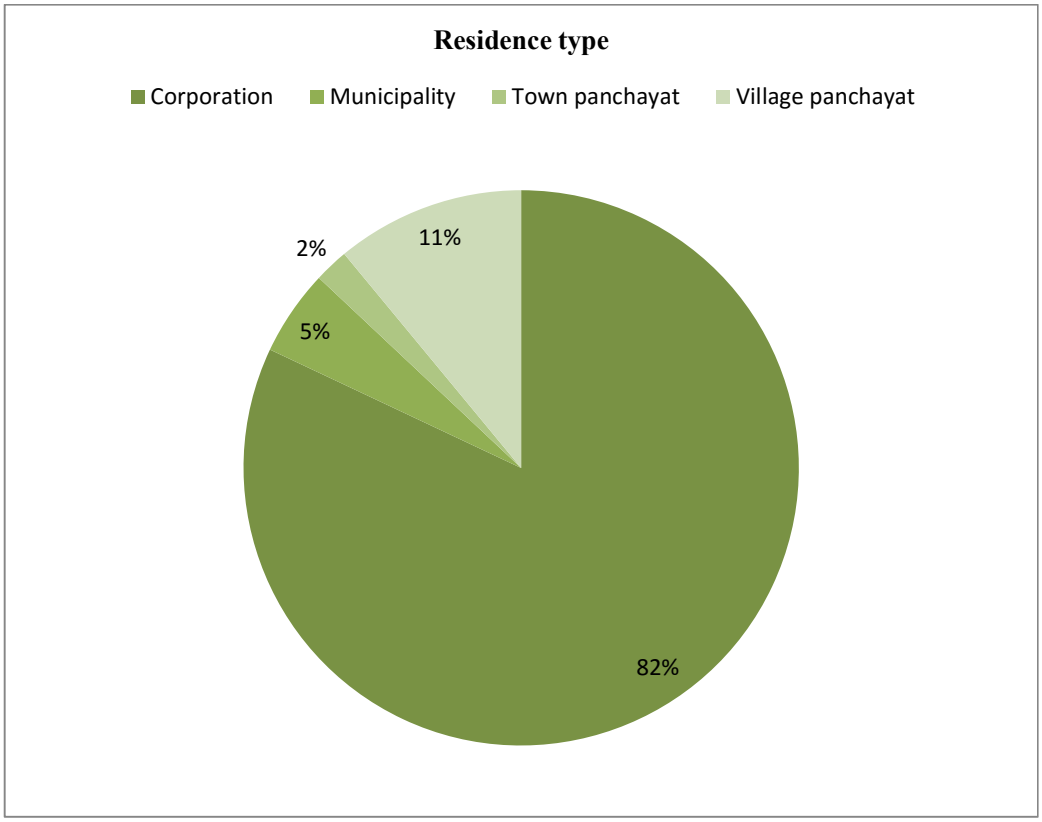
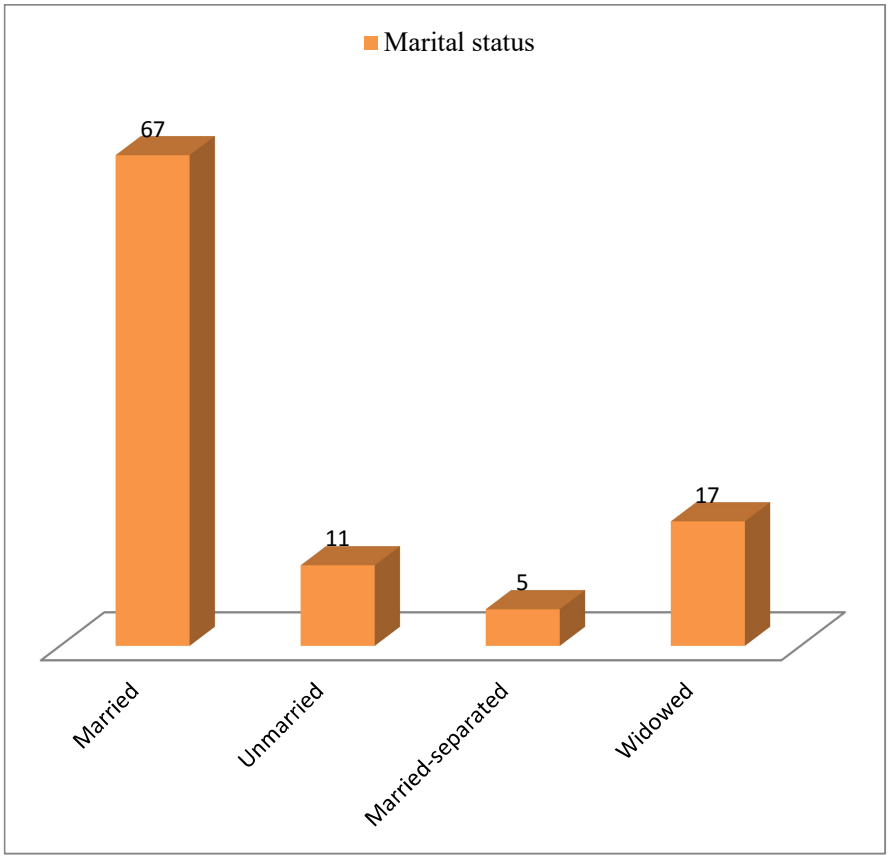


Figure 5 represents the type of residential area they are from. The majority of them (82%) reside in a corporation area while only 2% and 5% came from town panchayat and municipality respectively.

MARITAL STATUS OF THE PARTICIPANTS

Figure 6: Marital status of the participants



The figure 6 shows the marital status of the participants. The majority of them (67%) were married. Widowed, unmarried and married-separated were in 17%, 11% and 5% respectively.

EDUCATION OF THE RESPONDENTS

Table 1: Education of the respondents

Education of the respondents	*Percentage*
Illiterate	12.0
Primary school	34.0
Middle School	21.0
High School	28.0
Higher secondary or intermediate	3.0
Graduate or post graduate	2.0

The table details the education of the respondents. A majority (34%) of them had studied only up to primary school.12% are illiterate and 2% are graduate/postgraduate 67% of the participants didnot cross high school education.

OCCUPATION OF THE RESPONDENTS

Table 2: Occupation of the respondents

Occupation of the respondents	*Percentage*
Unemployed	40.0
Unskilled worker	40.0
Semiskilled worker	15.0
Skilled worker	3.0
Clerical	2.0

The table shows the occupation of the participants. A majority (80%) of them were unemployed or unskilled workers. Semiskilled, skilled workers and clericals were 15%,3% and 2% repectively.

INCOME OF THE RESPONDENTS

Table 3: Income of the respondents

Income of the respondents (in INR)	*Percentage*
≤2070	1.0
2070-6150	15.0
6150-10250	41.0
10250-15380	28.0
15380-20510	12.0
20510-41020	2.0
above 41020	1.0

The table depicts the income of the participants. A majority (41%) of them were earning between 6150 and 10250 INR.

SOCIOECONOMIC STATUS OF THE RESPONDENTS

Figure 7: Socioeconomic Status of the participants

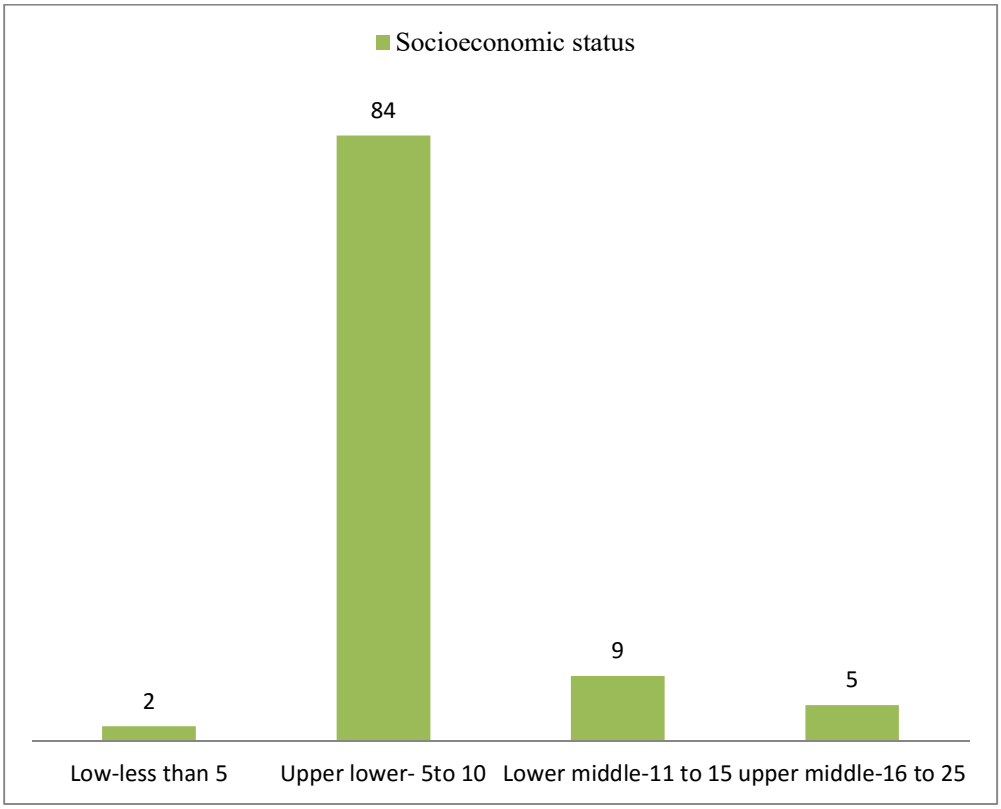
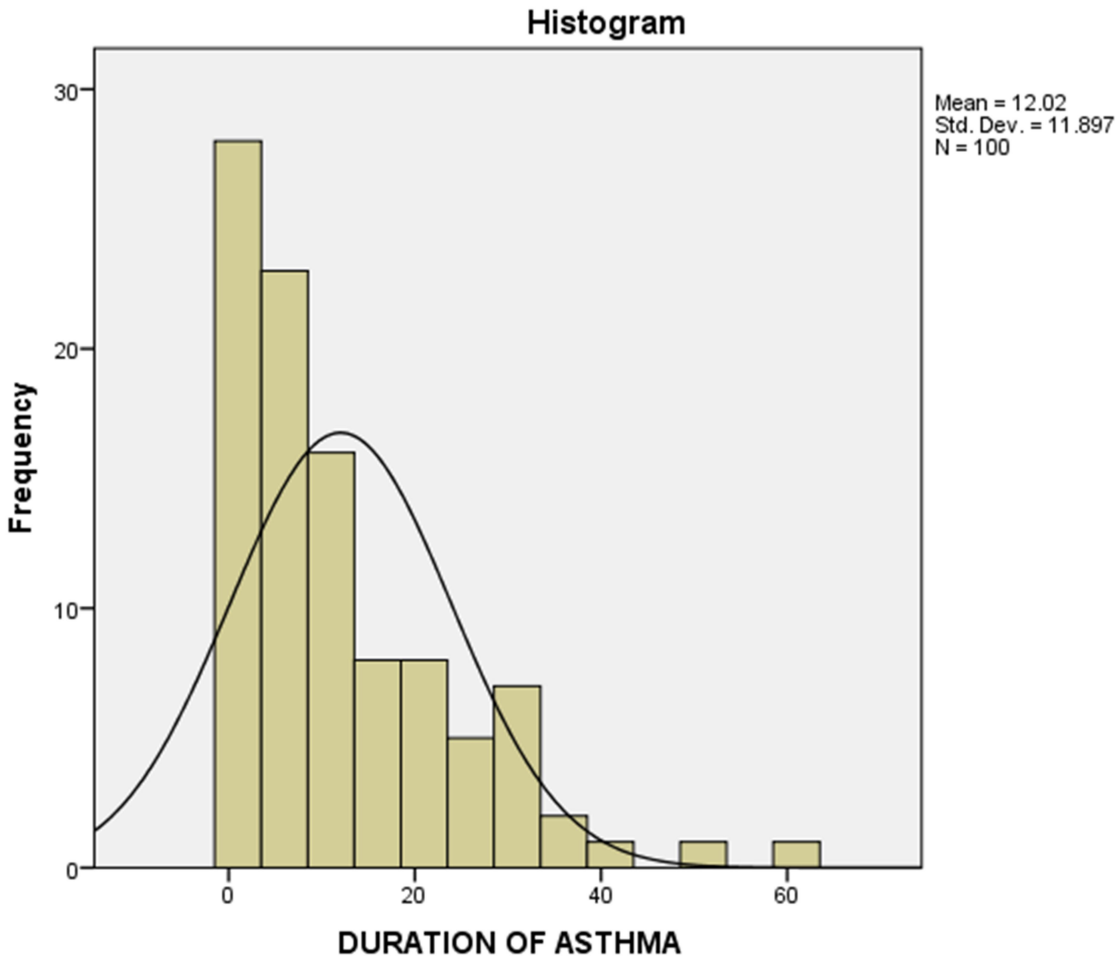


Figure 7 shows that 84% of them belonged to upper lower socioeconomic status.

DISEASE FACTORS

DURATION OF ASTHMA

Figure 8: Duration of asthma among participants



The histogram shows the duration of asthma among the 100 participants.

It ranges between 1 year and 60 years.

HISTORY OF SMOKING

Figure 9: History of smoking among participants

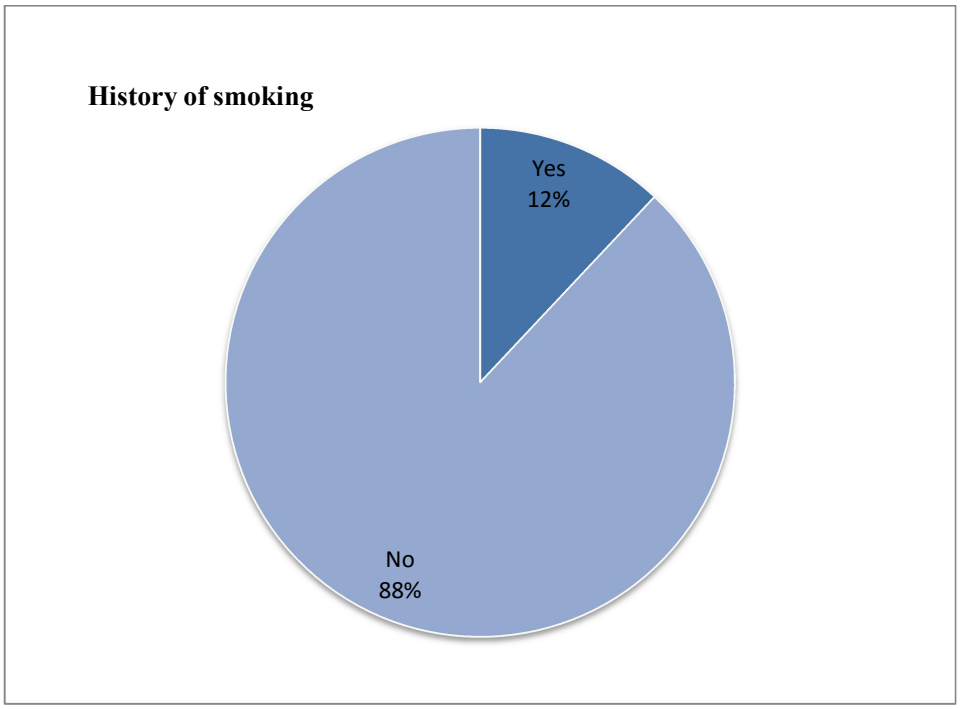


Figure 9 shows that only 12% of the participants had a history of smoking.

CURRENT SMOKING STATUS

Table 4: Current smoking status of the participants

Current smoking status	*Percentage*
Current Smoker	2.0
Previous smoker	8.0
Never smoker	88.0
Snuff	2.0

The table shows the current smoking status of the population under study

Out of 12 people who smoke, only 2 of them were currently smoking..

FAMILY HISTORY OF ASTHMA

Figure 10: Family history of asthma

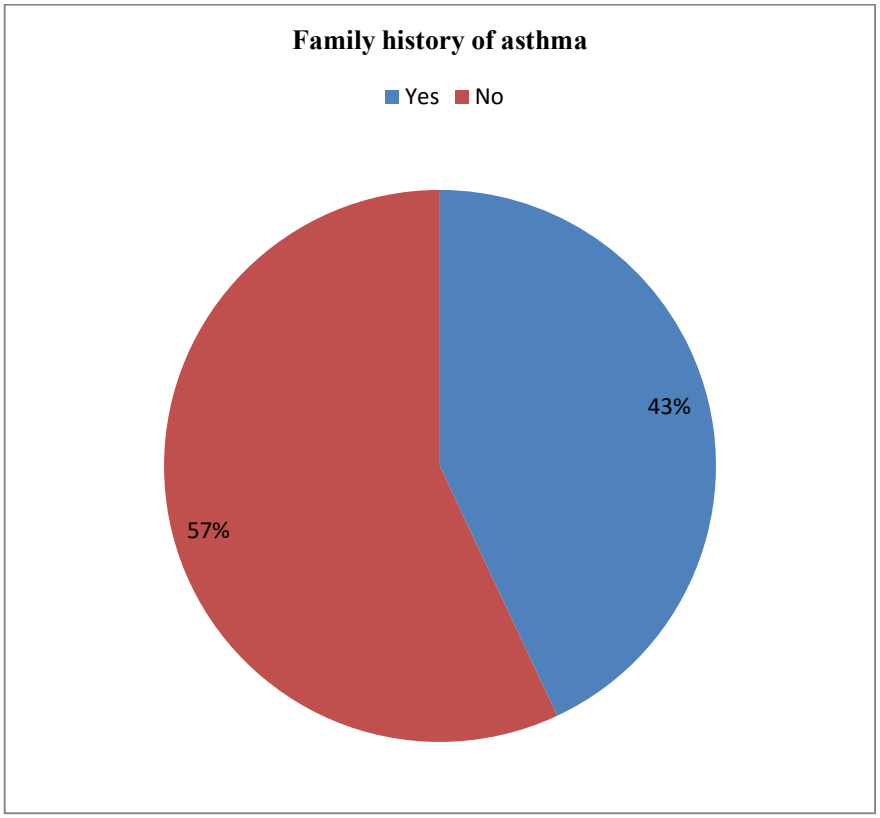


Figure 10 shows that only 43% of the participants had a family history of asthma.

LEVEL OF ASTHMA CONTROL AMONG THE SUBJECTS

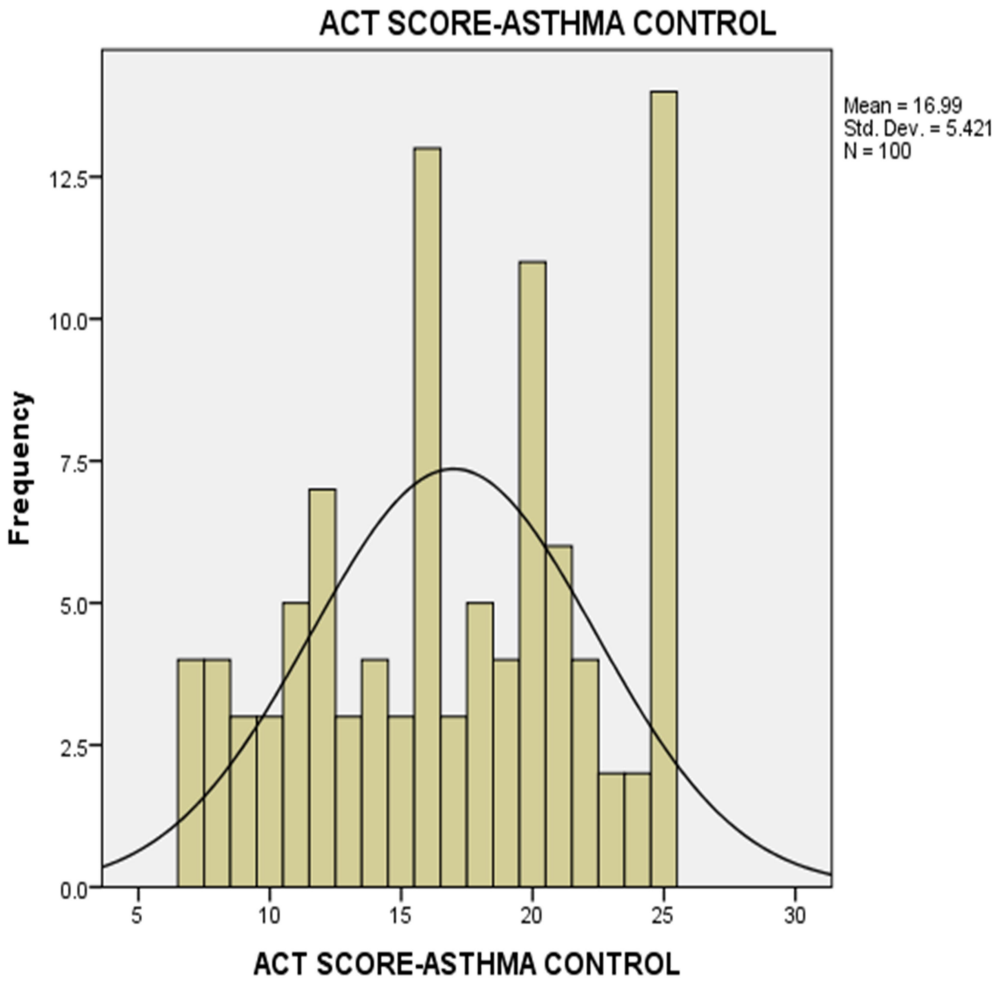
Table 5: Level of asthma control

Level of asthma control	*Percentage*
Well controlled	38.0
Not well controlled	27.0
Poorly controlled	35.0

The table shows the control of asthma among the participants. Thirty-five per cent of the participants had poorly controlled asthma.

ASTHMA CONTROL TEST SCORES

Figure 11: Asthma Control test scores



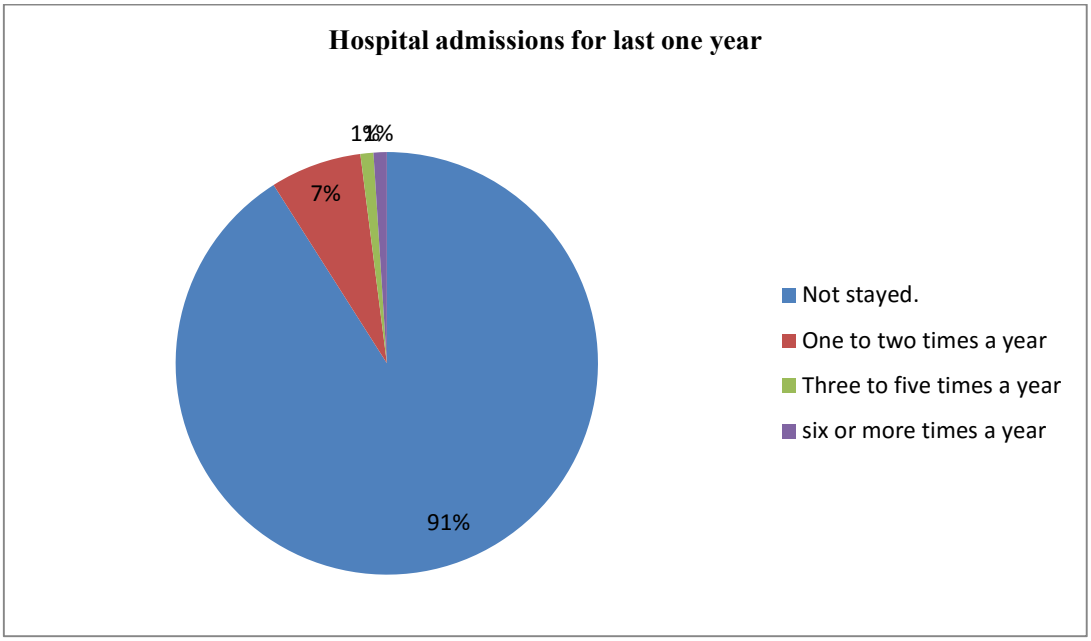
The histogram (figure 11) shows the distribution of asthma control scores among the participants

HOSPITAL VISITS FOR THE LAST ONE YEAR

All of them had only once or twice a month visit to the hospital in the preceding one year from the date of the study.

HOSPITAL ADMISSIONS FOR LAST ONE YEAR

Figure 12: Hospital admissions for last one year



A majority of them (91%) had not stayed in the hospital in the last one year.

TREATMENT FOR THE LAST ONE MONTH

Figure 13: Beta 2 agonist use

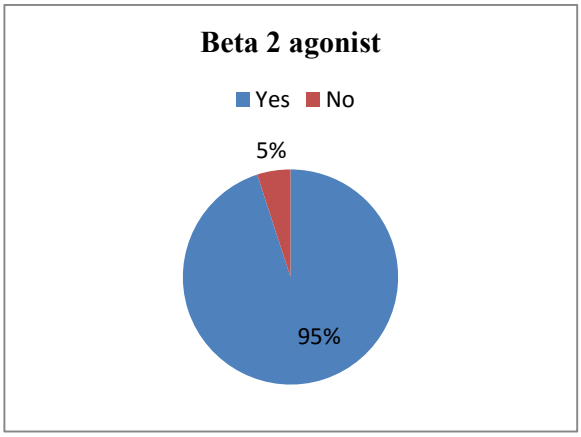
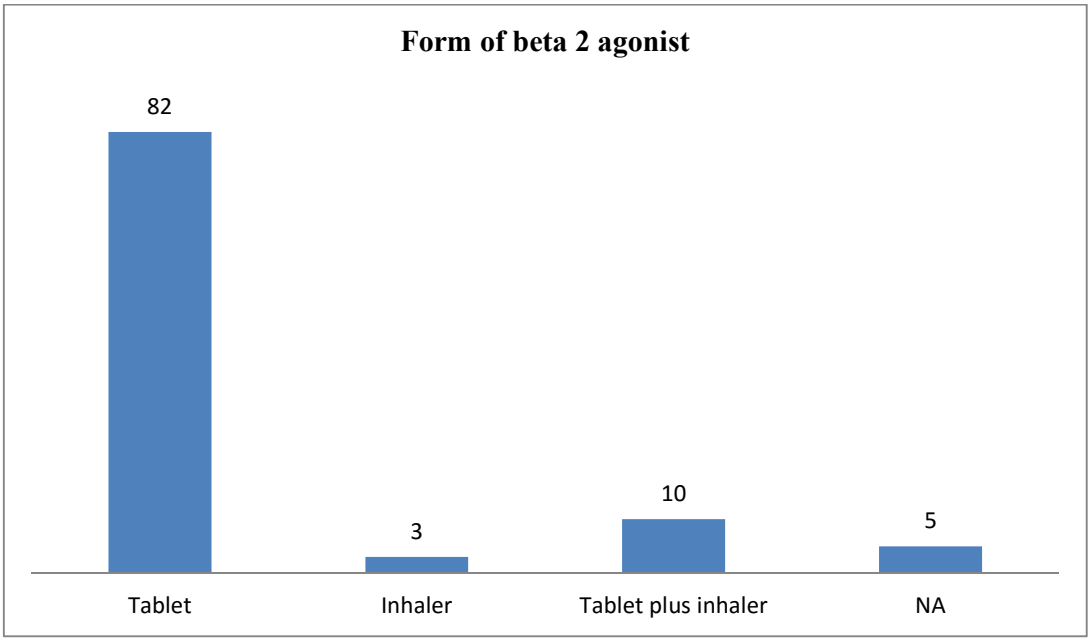


Figure 14: Form of beta two agonist use



The pie chart (Figure 13) shows that 95% of people were taking beta2 agonist. The subsequent figure 14 demonstrates that a majority of them (n=82) ingested it in tablet form.

Figure 15: Xanthine/Deriphylline use

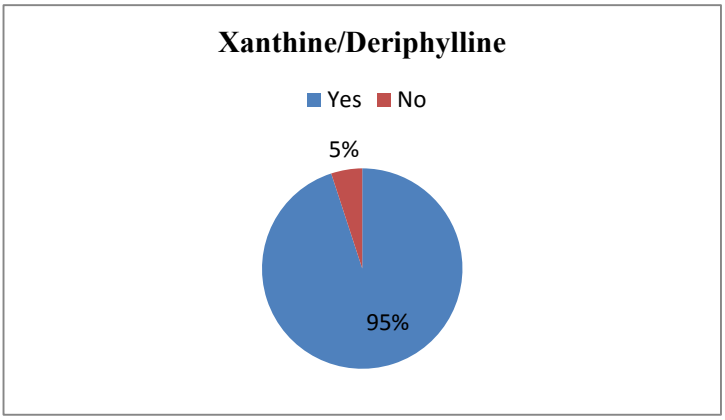
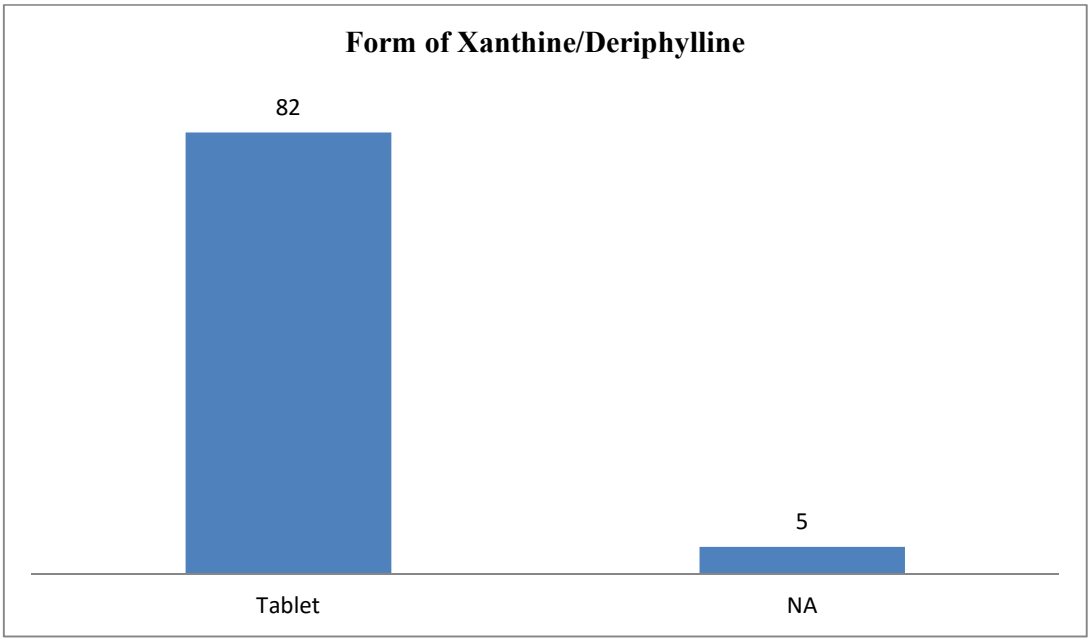
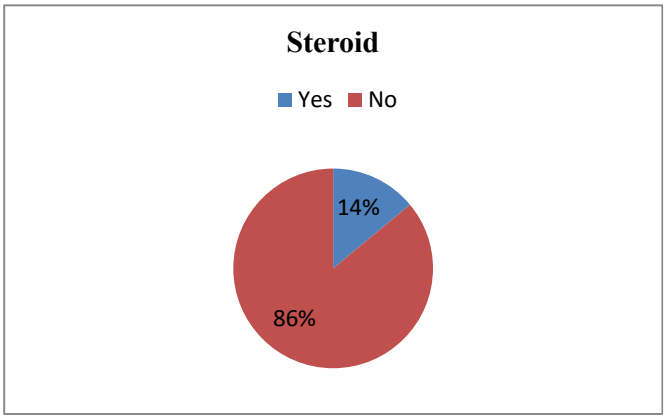


Figure 16: Form of Xanthine/Deriphylline use



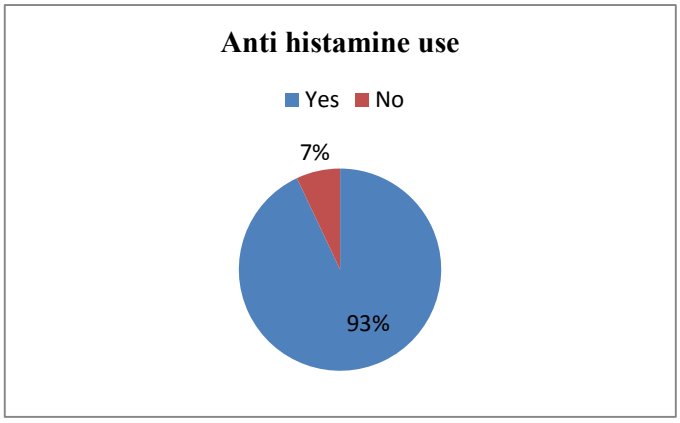
The pie chart (Figure 15) shows that 95% of people were taking Xanthine/Deriphylline. The subsequent figure 16 demonstrates that all of them (n=95) ingested it in tablet form.

Figure 17: Steroid use



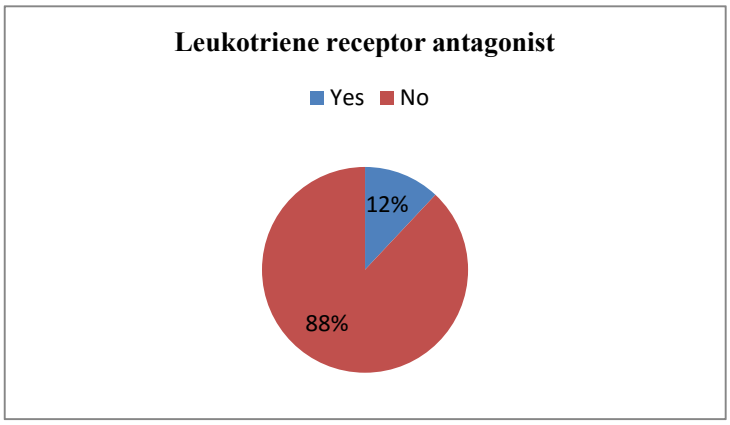
The pie chart (Figure 17) shows that 14% of people were taking steroids and all of them in the form of inhalers.

Figure 18: Anti histamine use



The pie chart (Figure 18) shows that 93% of people were taking antihistamines. The majority of them (n=83) took first generation drug Chlorpheniramine maleate, and 10 took cetirizine.

Figure 19: Leukotriene receptor antagonist use

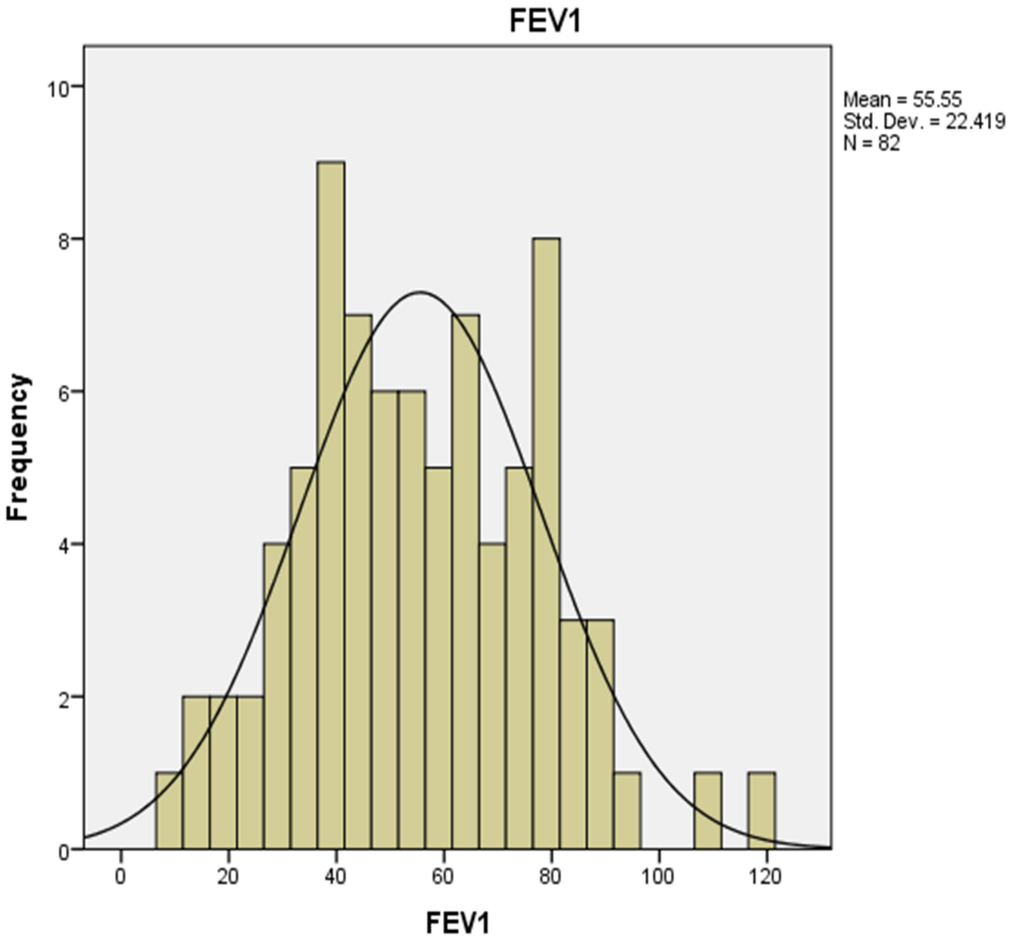


The pie chart (Figure 19) shows that only 12% of people were taking leukotriene receptor antagonist.

SPIROMETRY

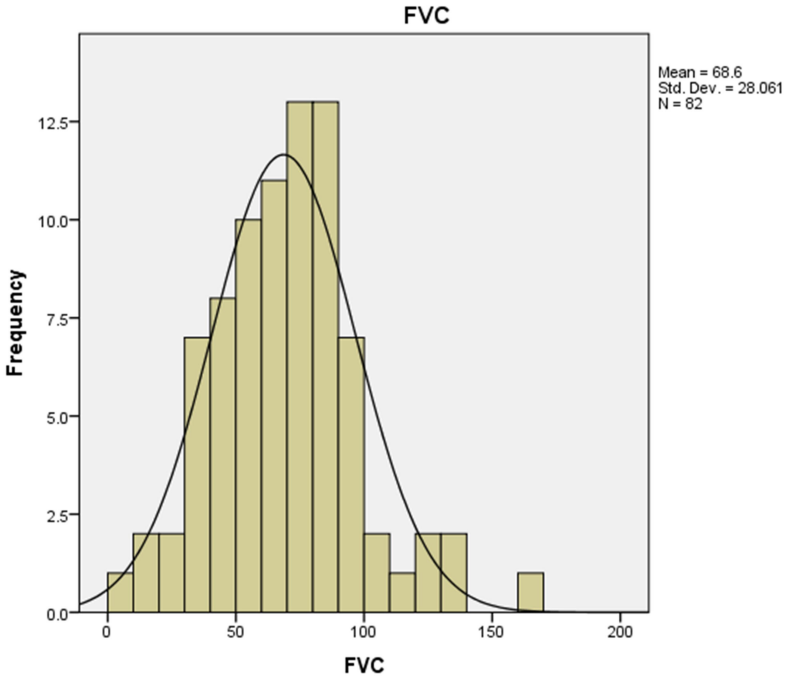
Following figures 20,21and 22 depict the values of FEV1%, FVC%, and FEV1/FVC% among 82 participants.

Figure 20: FEV1 % value distribution among the participants (n=82)



The mean value of FEV1% is 55.55±22.419

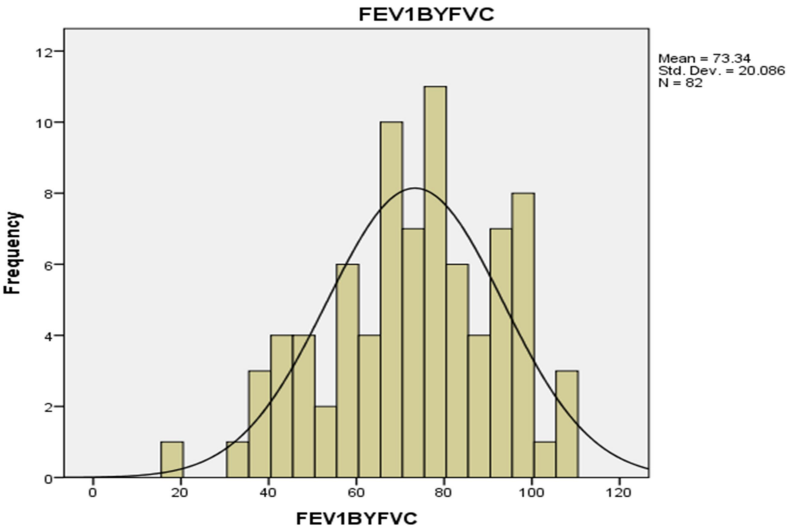
Figure 21: **FVC %value distribution among the participants** (n=82)



The mean value of FVC % is 68.6±28.061

Figure 22: FEV1/FVC%value distribution among the participants

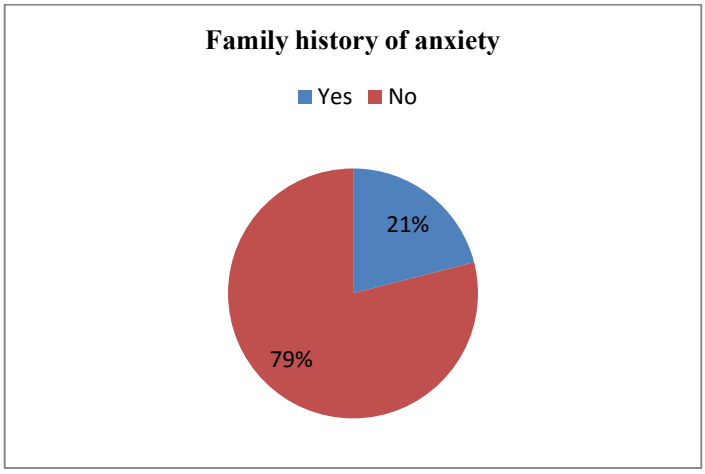
(n=82)



The mean value of FEV1/FVC (%) is 73.34±20.86

ANXIETY

Figure 23: Family history of anxiety



Among participants, 21 of them reported of having a family history of anxiety (Figure 23). Severe anxiety was found in 13% of the participants while moderate anxiety was found in 12% of the subjects.

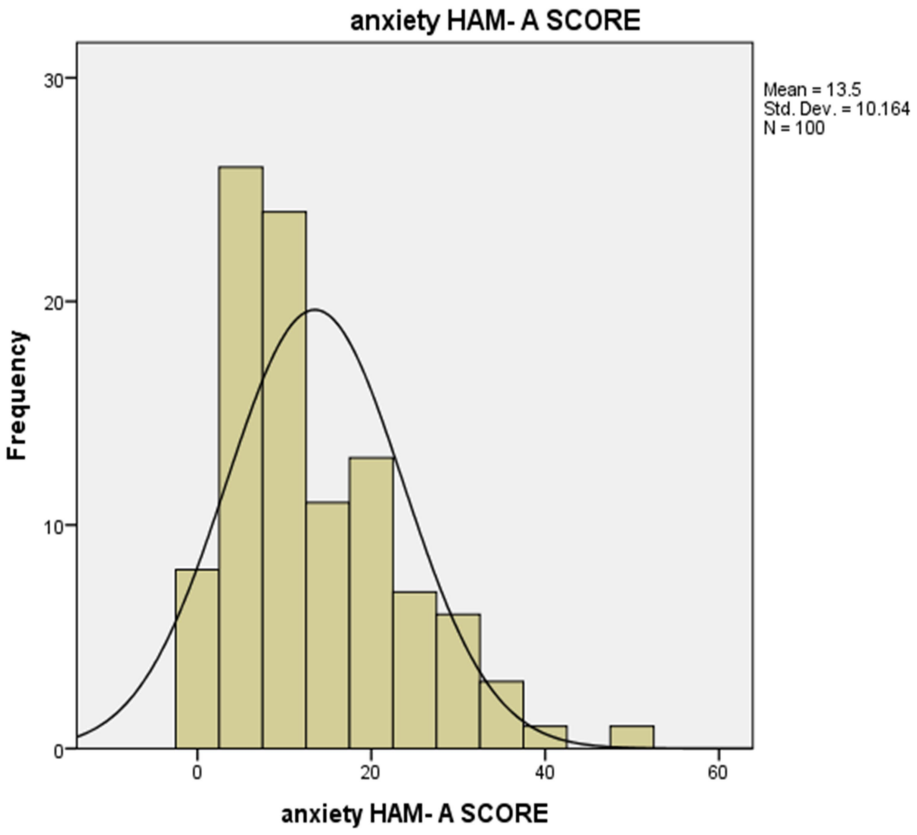
Table 6: Level of anxiety among the participants

Anxiety level	*Percentage*
Normal -0 to 13	64.0
Mild-14 to17	11.0
Moderate -18 to 24	12.0
Severe – above 25	13.0

Table 6 shows the findings from the study on the severity of anxiety among the participants. Totally 36% of the participants had anxiety.

ANXIETY SCORES

Figure 24: Anxiety scores

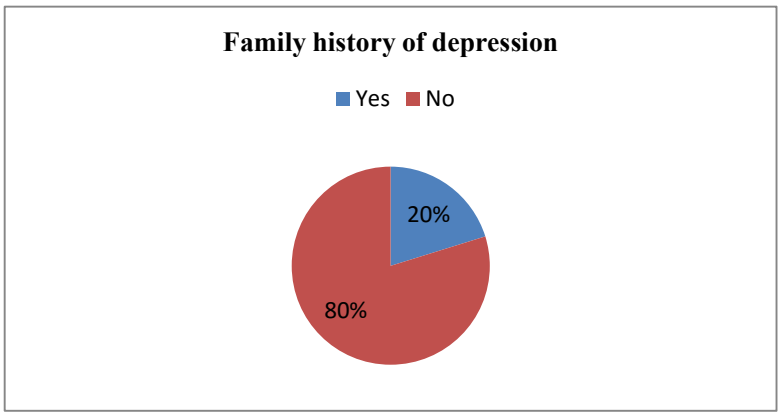


The mean of anxiety score is 13.5±10.164

The histogram (figure 24) shows the distribution of anxiety scores among the participants.

DEPRESSION

Figure 25: Family history of depression



Among participants, 20 of them reported of having a family history of depression (Figure 25).

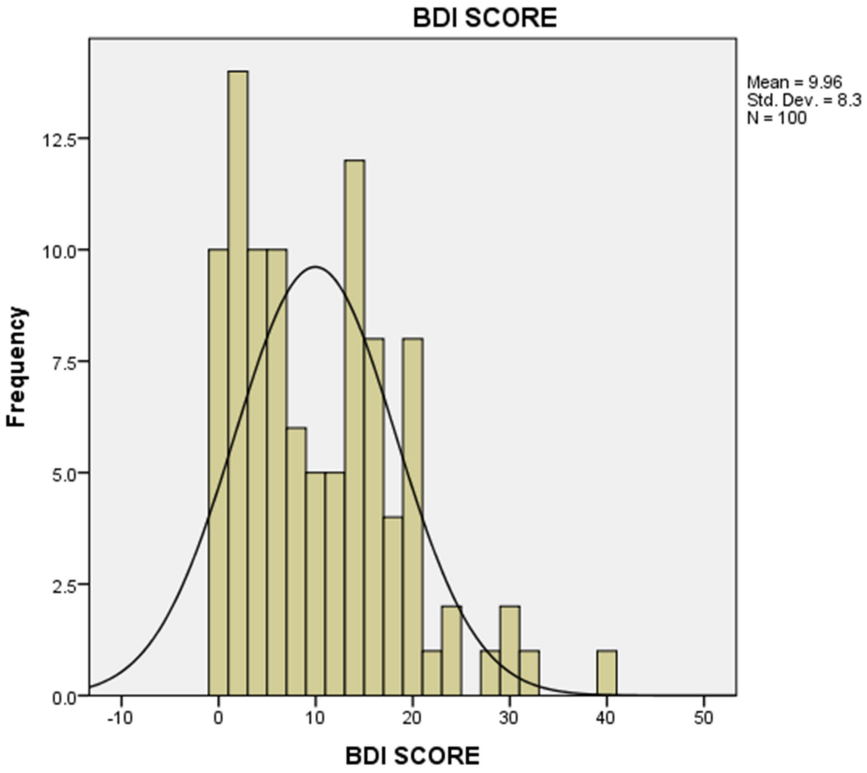
Table 7: Level of depression among the participants

Depression level	*Percentage*
Minimal-0-13	61.0
Mild-14-19	26.0
Moderate-20-28	9.0
Severe-29-63	4.0

Table 7 shows the findings from the study on the severity of depression among the participants. Severe depression was found in 4% of the participants while moderate depression was found in 9% of the subjects.Totally 39% have depression**.**

DEPRESSION *SCORES*

Figure 26: Depression scores

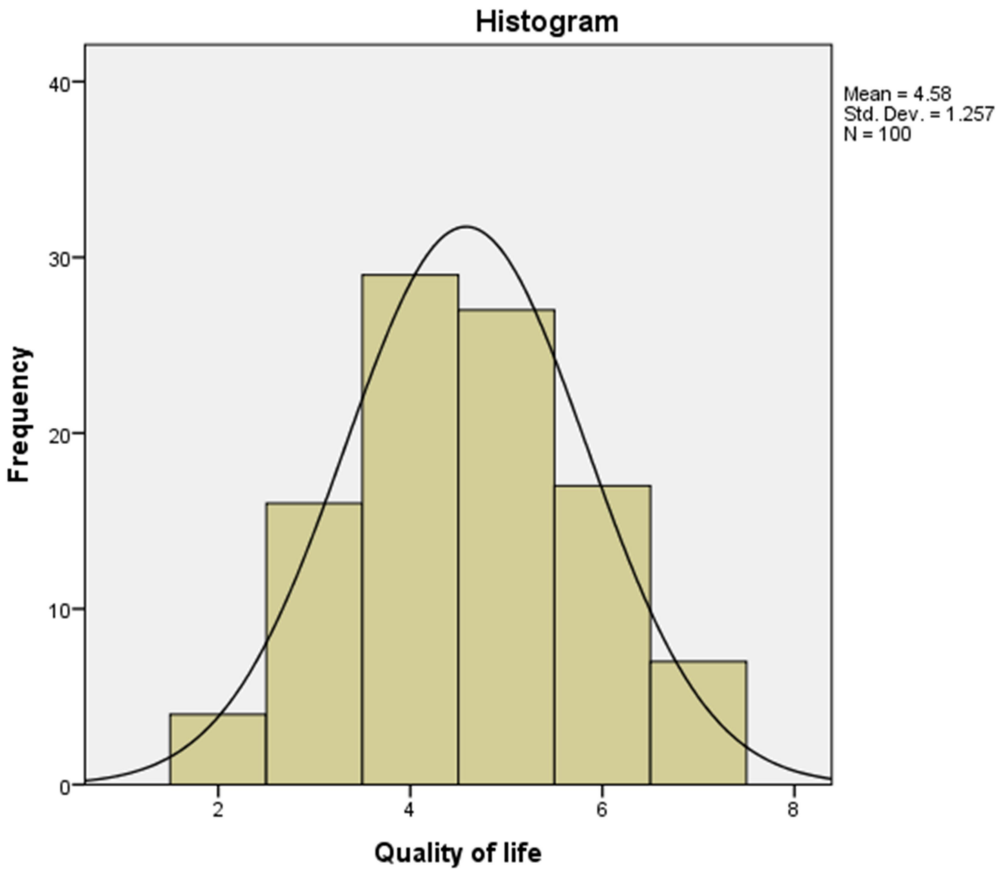


The mean of depression score is 9.96±8.3

The histogram (figure 26) shows the distribution of depression scores among the participants.

QUALITY OF LIFE

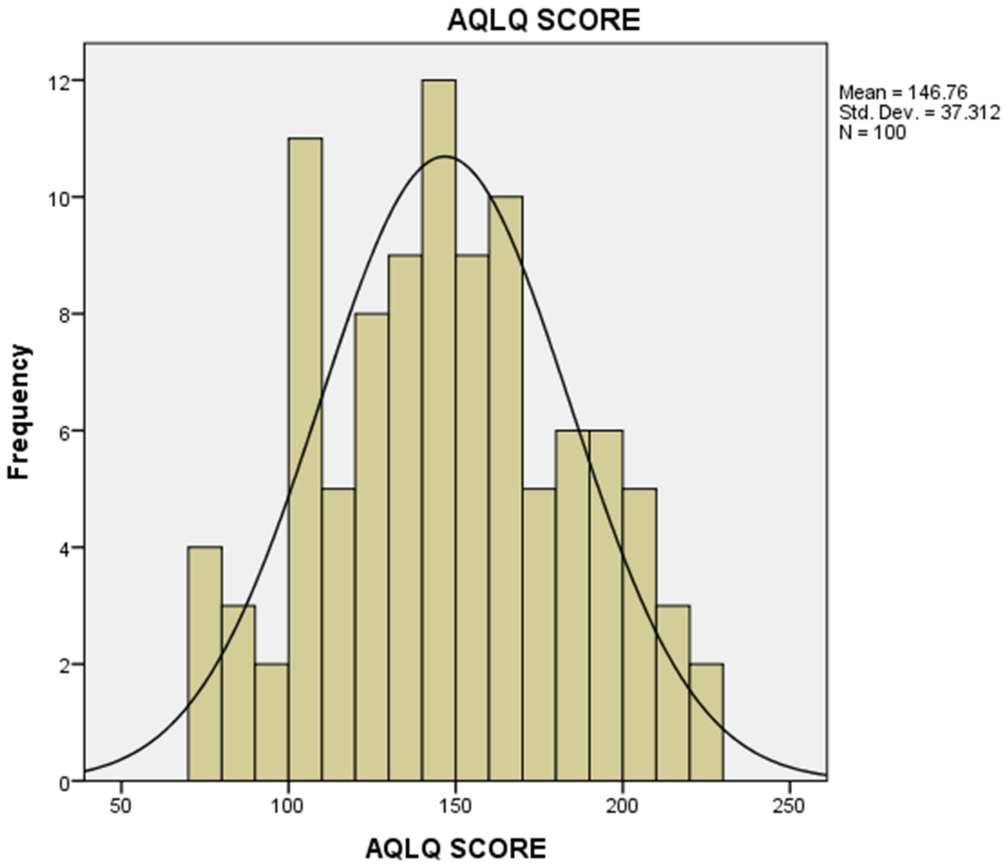
Figure 27: Quality of life



The histogram (figure 27) shows the distribution of quality of life among the participants. It is poor to good quality of life.The mean quality of life score (1-7) is 4.58±1.257.

QUALITY OF LIFE SCORES

Figure 28: Quality of life scores



The histogram (figure 28) shows the distribution of quality of life scores among the participants. The mean of quality of life total AQLQ score is 146.76 ± 37.312.

CORRELATION TESTS

CORRELATION BETWEEN FEV1/FVC AND DURATION OF ASTHMA

Table 8: Correlation between FEV1/FVCand Duration of asthma

Correlation between FEV1/FVCand Duration of asthma	
Pearson Correlation	-0.100
Sig. (2-tailed)	<0.01

Correlation tests between FEV1/FVC and Duration of asthma yield significant results. Table 8 shows a negative relationship between FEV1/FVC and Duration of asthma ($r=-0.100$, $p<0.01$) [table 8]

CORRELATION BETWEEN LEVEL OF CONTROL AND DURATION OF ASTHMA

Table 9: Correlation between level of control and Duration of asthma

Correlation between level of control and Duration of asthma	
Pearson Correlation	-0.264
Sig. (2-tailed)	<0.01

Correlation tests between level of control and Duration of asthma yield significant results. Table 9 shows a negative relationship between level of control and Duration of asthma ($r=-0.264$, $p<0.01$) [table 9]

CORRELATION BETWEEN ANXIETY AND DURATION OF ASTHMA

Table 10: Correlation between Anxiety and Duration of asthma

Correlation between Anxietyand Duration of asthma	
Pearson Correlation	0.079
Sig. (2-tailed)	<0.01

Correlation tests between Anxiety and Duration of asthma yield significant results. Table 10 shows a positive relationship between Anxiety and Duration of asthma ($r=0.079$, $p<0.01$) [table 10]

CORRELATION BETWEEN DEPRESSION AND DURATION OF ASTHMA

Table 11: Correlation between Depression and Duration of asthma

Correlation between Depressionand Duration of asthma	
Pearson Correlation	0.301
Sig. (2-tailed)	<0.01

Correlation tests between Depression and Duration of asthma yield significant results. Table 11 shows a positive relationship between Depression and Duration of asthma ($r=0.301$, $p<0.01$) [table 11]

CORRELATION BETWEEN QUALITY OF LIFE AND DURATION OF ASTHMA

Table 12: Correlation between Quality of life and Duration of asthma

Correlation between Quality of lifeand Duration of asthma	
Pearson Correlation	-0.520
Sig. (2-tailed)	<0.01

Correlation tests between Quality of life and Duration of asthma yield significant results. Table 12 shows a negative relationship between Quality of life and Duration of asthma ($r=-0.520$, $p<0.01$) [table 12]

CORRELATION BETWEEN LEVEL OF CONTROL AND FEV1/FVC

Table 13: Correlation between level of control and FEV1/FVC

Correlation between level of control and FEV1/FVC	
Pearson Correlation	0.395
Sig. (2-tailed)	<0.01

Correlation tests between level of control and FEV1/FVC yield significant results. Table 13 shows a positive relationship between level of control and FEV1/FVC ($r=0.395$, $p<0.01$) [table 13]

CORRELATION BETWEEN ANXIETY AND FEV1/FVC %

Table 14: Correlation between anxiety and FEV1/FVC%

Correlation between anxiety and FEV1/FVC%	
Pearson Correlation	-0.725
Sig. (2-tailed)	<0.05

Correlation tests between anxiety and FEV1/FVC%yield significant results. There is a significant correlation between anxiety and FEV1/FVC%in the study sample. There is a negative relationship between anxiety and FEV1/FVC% ($r=-0.725$, $p<0.05$) [table14].

CORRELATION BETWEEN DEPRESSION AND FEV1/FVC(%)

Table 15: Correlation between depression and FEV1/FVC%

Correlation between depression and FEV1/FVC%	
Pearson Correlation	-0.619
Sig. (2-tailed)	<0.01

Correlation tests between depression and FEV1/FVC% yield significant results. Table 15 shows the correlation tests between depression and FEV1/FVC(%) **.**There is a negative relationship between depression and FEV1/FVC %($r=-0.619$,$p<0.01$) [table 15]

CORRELATION BETWEEN QUALITY OF LIFE AND FEV1/FVC%

Table 16: Correlation between quality of life and FEV1/FVC%

Correlation between quality of life and FEV1/FVC%	
Pearson Correlation	0.113
Sig. (2-tailed)	<0.05

Correlation tests between quality of life and FEV1/FVC % yield significant results. There is a significant correlation between quality of life and FEV1/FVC% in the study sample. There is a positive relationship between quality of life and FEV1/FVC %($r=0.113$, $p<0.05$) [table 16].

As observed, there is a significant correlation between anxiety, depression and quality of life with respiratory obstruction. Correlation is positive with quality of life while it is negative with anxiety and depression.

CORRELATION BETWEEN LEVEL OF CONTROL AND ANXIETY

Table 17: Correlation between level of control and anxiety

Correlation between level of control and anxiety	
Pearson Correlation	-0.644
Sig. (2-tailed)	<0.01

Correlation tests between level of control and anxiety yield significant results. Table 17 shows a negative relationship between level of control and anxiety ($r=-0.644$, $p<0.01$) [table 17]

CORRELATION BETWEEN LEVEL OF CONTROL AND DEPRESSION

Table 18: Correlation between level of control and depression

Correlation between level of control and depression	
Pearson Correlation	-0.206
Sig. (2-tailed)	<0.01

Correlation tests between level of control and depression yield significant results. Table 18 shows a negative relationship between level of control and depression ($r=-0.206$, $p<0.01$) [table 18]

CORRELATION BETWEEN LEVEL OF CONTROL AND QUALITY OF LIFE

Table 19: Correlation between level of control and quality of life

Correlation between level of control and quality of life	
Pearson Correlation	0.877
Sig. (2-tailed)	<0.01

Correlation tests between level of control and quality of life yield significant results. Table 19 shows a positive relationship between level of control and quality of life ($r=0.877$, $p<0.01$) [table 19]

CORRELATION BETWEEN DEPRESSION AND ANXIETY

Table 20: Correlation between depression and anxiety

Correlation between depression and anxiety	
Pearson Correlation	0.873
Sig. (2-tailed)	<0.01

Correlation tests between depression and anxiety yield significant results. Table 20 shows a positive relationship between depression and anxiety ($r=0.873$, $p<0.01$) [table 20]

CORRELATION BETWEEN QUALITY OF LIFE AND ANXIETY

Table 21: Correlation between quality of life and anxiety

Correlation between quality of life and anxiety	
Pearson Correlation	-0.305
Sig. (2-tailed)	<0.01

Correlation tests between quality of life and anxiety yield significant results. Table 21 shows a negative relationship between quality of life and anxiety ($r=-0.305$, $p<0.01$) [table 21]

CORRELATION BETWEEN QUALITY OF LIFE AND DEPRESSION

Table 22: Correlation between quality of life and depression

Correlation between depression and quality of life	
Pearson Correlation	-0.512
Sig. (2-tailed)	<0.01

Correlation tests between quality of life and depression yield significant results. Table 22 shows a negative relationship between depression and quality of life ($r=-0.512$, $p<0.01$) [table 22].

POINT-BISERIAL CORRELATION BETWEEN FAMILY HISTORY OF ANXIETY AND ANXIETY

Table 23: Correlation between family history of anxiety and anxiety

Correlation between Family History of Anxiety and Anxiety	
Pearson Correlation	0.522
Sig. (2-tailed)	<0.05

Correlation tests between family history of anxiety and anxiety yield significant results. Table 23 shows a positive relationship between family history of anxiety and anxiety ($r=0.522$, $p<0.05$) [table 23].

POINT-BISERIAL CORRELATION BETWEEN FAMILY HISTORY OF DEPRESSION AND DEPRESSION

Table 24: Correlation between family history of depression and depression.

Correlation between Family History of Depression and Depression	
Pearson Correlation	0.701
Sig. (2-tailed)	<0.05

Correlation tests between family history of depression and depression yield significant results. Table 24 shows a positive relationship between family history of depression and depression ($r=0.701$, $p<0.05$) [table 24].

POINT-BISERIAL CORRELATION BETWEEN FAMILY HISTORY OF ASTHMA AND LEVEL OF CONTROL OF ASTHMA

Table 25: Correlation between Family History of Asthma and Level of Control of Asthma

Correlation between Family History of Asthma and Level of Control of Asthma	
Pearson Correlation	-0.622
Sig. (2-tailed)	<0.05

Correlation tests between Family History of Asthma and Level of Control of Asthma yield significant results. Table 25 shows a negative relationship between Family History of Asthma and Level of Control of Asthma ($r=-0.622$, $p<0.05$) [table 25].

POINT-BISERIAL CORRELATION BETWEEN FAMILY HISTORY OF ASTHMA AND ANXIETY

Table 26: Correlation between Family History of Asthma and Anxiety

Correlation between Family History of Asthma and Anxiety	
Pearson Correlation	0.024
Sig. (2-tailed)	<0.05

Correlation tests between Family History of Asthma and Anxiety yield significant results. Table 26 shows a positive relationship between Family History of Asthma and Anxiety ($r=0.024$, $p<0.05$) [table 26].

POINT-BISERIAL CORRELATION BETWEEN FAMILY HISTORY OF ASTHMA AND DEPRESSION

Table 27: Correlation between Family History of Asthma and Depression.

Correlation between Family History of Asthma and Depression	
Pearson Correlation	0.108
Sig. (2-tailed)	<0.05

Correlation tests between Family History of Asthma and Depression yield significant results. Table 27 shows a positive relationship between Family History of Asthma and Depression ($r=0.108$, $p<0.05$) [table 27].

POINT-BISERIAL CORRELATION BETWEEN FAMILY HISTORY OF ASTHMA AND QUALITY OF LIFE

Table 28: Correlation between Family History of Asthma and Quality of life

Correlation between Family History of Asthma and Quality of life	
Pearson Correlation	-0.812
Sig. (2-tailed)	<0.05

Correlation tests between Family History of Asthma and Quality of life yield significant results. Table 28 shows a negative relationship between Family History of Asthma and Quality of life ($r=-0.812$, $p<0.05$) [table 28].

POINT-BISERIAL CORRELATION BETWEEN HISTORY OF SMOKING AND LEVEL OF CONTROL OF ASTHMA

Table 29: Correlation between History of Smoking and Level Control of Asthma

Correlation between History of Smoking and Level of Control of Asthma	
Pearson Correlation	-0.796
Sig. (2-tailed)	<0.05

Correlation tests between History of Smoking and Level of Control of Asthma yield significant results. Table 29 shows a negative relationship between History of Smoking and Level of Control of Asthma ($r=-0.796$, $p<0.05$) [table 29].

POINT-BISERIAL CORRELATION BETWEEN HISTORY OF SMOKING AND ANXIETY

Table 30: ***Correlation between History of Smoking and Anxiety***

Correlation between History of Smokingand Anxiety	
Pearson Correlation	0.521
Sig. (2-tailed)	<0.05

Correlation tests between History of Smoking and Anxiety yield significant results. Table 30 shows a positive relationship between History of Smoking and Anxiety ($r=0.521$, $p<0.05$) [table 30].

POINT-BISERIAL CORRELATION BETWEEN HISTORY OF SMOKING AND DEPRESSION

Table 31: **Correlation between History of Smoking and Depression**

Correlation between History of smoking and Depression	
Pearson Correlation	0.391
Sig. (2-tailed)	<0.05

Correlation tests between History of Smoking and Depression yield significant results. Table 31 shows a positive relationship between History of Smoking and Depression ($r=0.391$, $p<0.05$) [table 31].

POINT-BISERIAL CORRELATION BETWEEN HISTORY OF SMOKING AND QUALITY OF LIFE

Table 32: Correlation between History of Smoking and Quality of life

Correlation between History of smoking and Quality of life	
Pearson Correlation	-0.430
Sig. (2-tailed)	<0.05

Correlation tests between History of Smoking and Quality of life yield significant results. Table 32 shows a negative relationship between History of Smoking and Quality of life ($r=-0.430$, $p<0.05$) [table 32].

CORRELATION TESTS

S NO	CORRELATION	r value	P value	Significant relationship
1.	*FEV1/FVC% and Duration of asthma*	-0.100	<0.01	Negative
2.	*Level of control and Duration of asthma*	-0.264	<0.01	Negative
3.	*Anxiety and Duration of asthma*	0.079	<0.01	Positive
4.	*Depression and Duration of asthma*	0.301	<0.01	Positive
5.	*Quality of life and Duration of asthma*	-0.520	<0.01	Negative
6.	*Level of control and FEV1/FVC%*	0.395	<0.01	Positive
7.	Anxiety and FEV1/FVC%	-0.725	<0.05	Negative
8.	Depression and FEV1/FVC%	-0.619	<0.01	Negative
9.	Quality of life and FEV1/FVC%	0.113	<0.05	Positive
10.	Level of control and anxiety	-0.644	<0.01	Negative
11.	Level of control and depression	-0.206	<0.01	Negative
12.	*Level of control and quality of life*	0.877	<0.01	Positive
13.	Depression and anxiety	0.873	<0.01	Positive
14.	Quality of life and anxiety	-0.305	<0.01	Negative
15.	Quality of life and depression	-0.512	<0.01	Negative
16.	*Family h/ o anxiety and anxiety*	0.522	<0.05	Positive
17.	*family h/o depression and depression*	0.701	<0.05	Positive
18.	Family History of Asthma and Level of Control of Asthma	-0.622	<0.05	Negative
19.	*Family History of Asthma and Anxiety*	0.024	<0.05	Positive
20.	*Family History of Asthma and Depression*	0.108	<0.05	Positive
21.	*Family History of Asthma and Quality of life*	-0.812	<0.05	Negative
22.	*History of Smoking and Level of Control of Asthma*	-0.796	<0.05	Negative
23.	History of smoking and Anxiety	0.521	<0.05	Positive
24.	*History of Smoking and Depression*	0.391	<0.05	Positive
25.	*History of Smoking and Quality of life*	-0.430	<0.05	Negative

DISCUSSION

DISCUSSION

The aim of this study is to measure the prevalence of anxiety and depression in bronchial asthma patients and its impact on the asthma control and there by their effect on quality of life. It also attempted to investigate the relationship wih the duration of asthma and its impact on the illness and alteration of physical and mental wellbeing of the individual.

The mean age of the participants in **Liam G. Heaney et al[60], S.Centanni et al[69]** and other studies[41, 62,48, 51,52, 62,75,83]varied between 30-65 years.In our study greater part of participants were 41 -50 years (33%) and 31 -40 years(21%),

Hanna Trzcińska et al,[63] Neide Suzane Carvalho et al[75] and some other studies[41,48,52,62,70,82]reported that females were predominant participants ranging from 62 to 73 percent . Our study reports similarly with 71% of female participants.But **Antje Kullowatz et al[44]**and **Yi-Chen Lee et al[73]**reported equal gender involvement with slight female predominance.**Krzysztof Gomuka et al[64]** reported that men presented with depression significantly more often in the study population.

Our study reports that Hindus (84%) were the major religious group involved followed by Christians (11%) and Muslims (7%). No

other study in my reference mentioned about religiosity. One Malaysian study **Sami AR Al-Dubai et al** [70] reported the ethnicity of the participants- Chinese-60.4%, Malays-27.7%, Indians -11.9%.

Two prior studies **Taghreed S. Farag et al** [82](urban-62%,rural-38%)**, Yi-Chen Lee et al**[73](urban-72.4%,rural-27.6%) reported that most participants were from urban area.As our study center is situated in the city limit, most of the participants were having residence in Corporation (82%) and Municipality (5%)whereas **Hikmet Coban et al**[51]**and Yi-Chen Lee et al**[73]reported that rural population had independent risk for psychiatric comorbidity.

Antje Kullowatz et al[44]and other studies [70,71, 82]reported that 60-90 percent of them were married in concordance with our study (67%).

Our study shows that around 67% of asthmatics had less than high school education and only 33% completed high school education similar to a German study by**Antje Kullowatz et al**[44] where 36.9% completed beyond high school education and an Egyptian study by **Taghreed S. Farag et al** [82] reported 54% with less than high school education and 46% with high school education. But a Malaysian study **Sami AR Al-Dubai et al** [70]reported most asthmatics (59.4%) had tertiary education and only 40.6% had less than high school education.

Similar to previous studies (**Sami AR Al-Dubai et al** [70] - 63.4%,**Taghreed S. Farag et al** [82]-60%)**,** sixty percent of this study population were working group, either skilled or unskilled.

Our study population had duration of illness ranging from 1year to 60 years with mean of 12.02±11.897 years. Similar to our study, an Italian study (**Fabiano Di Marco et al**[62]) reported 12±12 years whereas some other studies reported variable duration of illness (**Liam G. Heaney et al**[60] -21±2 years, **Antje Kullowatz et al**[44] -24.4±13.1 years,**s.centanni et al** [69] -10.58±1.14 years).

Our study reports that asthma chronicity has a significant positive correlation with level of anxiety and depression as well as negative correlation with FEV1 /FVC%, asthma controland quality of life.

Inour study, smoking had positive correlation with anxiety and depression and negative correlation with asthma control and quality of life**.** Similar to our study,**LD Rimington et al**[42] reported depression and anxiety were higher in those who continued to smoke. **Al-kalemji A et al**[57]showed that smoking was a major contributing factor to decreased quality of life in asthmatics.

In this study, 43% of the respondents had family history of asthma and they had significant negative correlation with asthma control and quality of life and significant positive correlation with anxiety and

depression. No other study analysed about the relationship of family history of asthma and quality of life.

Wellcontrolled asthma was found among 38%, with the remaining 62% had either partial or poorly controlled asthma similar to that of the study by **Aline Arlindo Vieira et al**[52](40%). While it is in contrast to the study by **Fabiano Di Marco et al**[62] (71%), **Shigang Liu et al**[71]**2014 (**73.56%) which had findings of major portion of the population studied with good control of asthma.

Most of the patients in this study visited outpatient department once or twice in the last month either to get the drugs or for any ailments related to asthma but only 7% got admitted for acute exacerbations in the last year**.** Similar to our study , **Liam G. Heaney et al**[60]reported 1.26% of well controlled and 6 to 10.3% of uncontrolled asthmatics got admitted and **in Antje Kullowatz et al**[44]study only 2% had visited general practitioners for asthma related issues and 0.5% got admitted. In contrast, **Fabiano Di Marco et al**[62]mentioned that 8% (well controlled-7%,poor controlled-11%) of their participants visited emergency dept once or twice and 19% (well controlled-14%,poor controlled-30%) needed urgent care.

India being a most populated developing country,95% of the participant of our study were taking oral bronchodilators rather inhalers.

Despite which, our study did not have any significant correlation with asthma control, psychiatric comorbidity and quality of life because of the convenient sampling method and smaller sample size. In contrast to this report, **Kim L. Lavoie et al**[41]study in the population of a well developed country Canada, reported psychiatric morbidity in participants with bronchodilator use in the last week.

The steroid, anti-histamine and leukotriene receptor antagonist use did not have any significant relationship with asthma control and psychiatric morbidity in this study but some studies reported depression in high dose steroid users because our patients were given maintaining on low dose steroids.

Our study had a great variations in the meanvalue of FEV1%-55.55%±22.419,FVC%-68.8%±28.061 and FEV1 /FVC%-68±2%. Most of the studies reported high mean value for FEV1%[**Neide Suzane Carvalho et al**[75]**-**Good control-75%±20,poor control-66%±24, **Fabiano Di Marco et al**[62]**-** 88%±13, Good control-89%±13,poor control-85%±116, **Aline Arlindo Vieira et al**[52] -FEV1%-72.4%±19.7, FVC%-88.8%±17.3 and FEV1/FVC%-80.6%±13 and **Hikmet Coban et al**[51]-FEV1 (%) 84.7 ± 19.3 ,FVC (%) 84.9 ± 16.5 and , FEV1/FVC (%) 84.4 ± 9.6.].

FEV1/FVC % of less than 75 – 80% indicates airway obstruction. Our study infers,an increased airway obstruction(lessFEV1/FVC) causing more anxiety, depression, poor asthma control and lowers the quality of life.

Among the participants, 21 of them reported of having a family history of anxiety and 20 of them having a family history of depression.Our study showed significant positive correlation between family history and psychiatric morbidity which was not analysed in previous studies.

Totally, 36% of the participants had anxiety and 39% had depression.Similar to our study **Hikmet Cobanet al**[51]reported that anxiety in 33.3% and depression in 47.7%. Likewise,**Katon WJ etal**[83]reported anxiety in 25% and depression in 20% ; **Antje Kullowatz et al**[44]reported anxiety in11% and depression in 9% and **Sami ar al-dubai et al**[70]reported anxiety in 28.7% and depression in 24.8%.

Among the participants mean AQLQ score of quality of life(1 to 7) was 4.58±1.257. and total mean score was 146.76±37.312. Similar to this study **Hikmet Coban et al**[51]reported mean AQLQ score of 4.3± 1.2. As well **Kim L. Lavoie et al**[41] **2004** reported the mean AQLQ Score of 5.370±08 among those without psychiatric illness and 4.670±12 among those with psychiatric illness.

Finally our study showed that a better level of asthma control had a significant reduction in anxiety and depression, which in turn had a significant improvement in Quality of life in concordance to studies by**Liam G. Heaney etal[60], Kim L. Lavoie et al[41], Heba Ibrahim elkeshishy et al[50], Lavoie KLet al[53], Urrutia I et al[43], Ouellet K et al[59], Hikmet Cobanet al[51], Sundbom F et al[46]**

Whereas **Katon WJ etal[83] and** Yi**-Chen Lee et al[73]**reported greater anxiety alone with impaired asthma control and lower quality of life and **Neide Suzane Carvalho et al[75]**reported higher rates of depressive symptoms only in uncontrolled asthma group.

A comparative study by **Aline Arlindo Vieira et al[52]**reported that the prevalence of anxiety and of anxiety with depression was significantly higher among uncontrolled than controlled asthma patients like ours.But it differs from our study in that there were no differences between the two groups in terms of prevalence of depression, spirometry results,or quality of life score.

Antje Kullowatz et al[44] ,Wang L et al[36]and **Hanna Trzcińska et al[63]**concluded that depression was significantly associated with worse asthma control and asthma-related quality of life but there was no significant correlation between the degree of asthma control and the level of anxiety.

Antje Kullowatz et al[44]also reported that there were significant associations between severe depression and number of hospital visits as well as number days of corticosteroid intake. Our study did not have this association as all patients visited once in a month to obtain medications.

Unlike **Sami AR Al-Dubai et al**[70]who demonstrated that pateints >50 years, Indian ethnicity, low monthly income and students had more depression and anxiety, our study didn't show any correlation of either disease factor or psychiatric morbidity with socio demographic factors

Lavoie KLet al[53]reported that the frequency of bronchodilator uses and breathlessness were uniquely associated with GAD but we were not able to demosnstrate this correlation as 95% of the participants were using bronchodilators.

Flor-Eschrich et **al**[48]reported that Qualityof life was negatively correlated with poor control of asthma and depression similar to our study. But pateints with less than secondary education, patients admitted to hospital within 3 years and those using long term beta 2 agonist showed negative correlation with asthma control and quality of life, which were not correlated in our study.

In addition to anxiety and depression, **Fabiano Di Marco et al**[62]reported that FEV1 < 60% of the predicted value and age above 65

years correlated with poor asthma control but these factors didnot show correlation in our study.

The association between psychiatric morbidity, poor asthma control and asthma-related quality of life could occur through several ways including behavioral disturbances, such as disorganized self-care and poor health behaviors; cognitive or perceptual distortions, such as biased symptom reporting; or through the autonomic nervous (ANS) and immune systems abnormality caused by direct physiological effects of depression and anxiety, which increase asthma symptomatology.

Having chronic inflammatory pathology and varying symptomatology, all asthmatics have possibility of future exacerbations and decreased lung functions which inturn cause stress reactions. It has been hypothesed that chronic psychological stress is a pro inflammatory state [84]. Two other studies also evidenced to support this concept that stress is associated with increased leukocyte production of pro inflammatory superoxide and cytokines.[85,86] It is established that there is a close relationship between the difficulty in achieving asthma control and psychiatric disease. A multidimensional apporoach is needed for physicians while managing bronchial asthma. Physicians should be aware of the fact that anxiety and depressive disorders increase the risk of poor treatment adherence to appropriate asthma regimens.

CONCLUSION

CONCLUSION

Our study reports that in bronchial asthma patients

- The prevalence of anxiety and depression were 36 and 39 percent respectively.
- 38 percent of participants have well controlled asthma.
- Good quality of life and better asthma control were correlated negatively with anxiety and depression.
- Chronic duration of asthma has negative correlation with FEV1/FVC(%) , good asthma control and quality of life and positive correlation with anxiety and depression
- FEV1/FVC (%) has positive correlation with quality of life and better asthma control and negative correlation with anxiety and depression.
- There was significant positive correlation between family history of anxiety and depression with illness associated psychiatric morbidity.
- Family history of asthma has a positive correlation with anxiety and depression and negative correlation with asthma control and quality of life.
- Smoking history has positive correlation with impaired asthma control, psychiatric morbidity and poor quality of life.

STRENGTH OF THE STUDY

1. Though no significant correlation was found, the study analysed the confounding factors like beta 2 agonist use and steroid use which by themselves cause anxiety and depression respectively.
2. The study demonstrated the correlation of family history of asthma with asthma control, prevalence of psychiatric morbidity and quality of life.
3. In addition to family history of asthma, correlation of family history of anxiety and depression with asthma control, prevalence of psychiatric morbidity and quality of life were also analysed.

LIMITATION OF THE STUDY

1. The sample size is small comparing to the prevalence of psychiatric disorder in bronchial asthma patients.

2. It is a cross sectional study hence didnot analyse improvement of (outcome) of the asthma after the psychiatric treatment.

3. It is a single centre study where most of the participants were from urban area, hence results cannot not be generalized. .

4. The study didnot include children and young adolescents in whom prevalence of asthma is high which in turn causes more anxiety and depression.

5. The study didnot analyse the direction of relationship of asthma with anxiety, depression, level of control and quality of life because it is neither a longitudinal study nor a case control study.

RECOMMENDATIONS:

- A large population-based multi center longitudinal study among children, adolescents, and adults with asthma to measure the prevalence and impact of psychiatric comorbidity is needed. As the comorbid psychiatric disorders adversely affect the self-efficacy, self-care, control of asthma, symptom load and functioning in persons with asthma, longitudinal study will be helpful to develop trials of treatment.
- It is also recommended to analyze the relationship of dose of steroid and beta 2 agonist used in bronchial asthma with anxiety and depression respectively before and after treatment with these drugs.

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ANNEXURES

PROFORMA

SOCIO DEMOGRAPHIC FACTORS

1 **AGE**

(1)18-20

(2) 21-30

(3) 31-40

(4) 41-50

(5) 51-60

(6) ABOVE 60

2 **SEX**

(1) Male

(2) Female

3 **RELIGION**

(1) Hindu

(2) Christian

(3) Muslim

(4) others

4 **FAMILY**

(1) Nuclear (2) Joint family

5 RESIDENCE

(1) Corporation

(2) Municipality

(3) Town panchayat

(4) Village panchayat

6 MARITAL STATUS

(1) Married

(2) Unmarried

(3) married-separated

(4) Widowed

7 EDUCATION

(1) Illiterate

(2) Primary school

(3) Middle school

(4) High school

(5) Higher secondary or intermediate

(6) Graduate or Postgraduate

(7) Profession or honors

8 OCCUPATION

(1) Unemployed

(2) Unskilled worker

(3) Semiskilled worker

(4) Skilled worker

(5) Clerical, shop owner, Farmer

(6) Semi profession

(7) Profession

9 INCOME

(1) ≤2070

(2) 2070-6150

(3) 6150-10250

(4) 10250-15380

(5) 15380-20510

(6) 20510-41020

(7) Above 41020

10 SOCIO ECONOMIC STATUS

(1) Low SES

(2) Upper lower SES

(3) Lower middle SES

(4) Upper middle

(5) Upper

DISEASE FACTORS

(1**) DURATION OF ILLNESS**- no of years

(2**) H/O SMOKING** 1) yes 2) no if yes

(**3) CURRENT SMOKING**

1 current smoker

2 Previous smokers

3 Never smoker

(3) **FAMILY HISTORY OF ASTHMA** OR **ALLERGENS**

1) Yes 2) No

(4) **LEVEL OF CONTROL OF ASTHMA**

1) Well controlled

2) Not well controlled

3) Poorly controlled

(5) **SPIROMETRY MEASURES**

(1) FEV1 %

(2) FVC %

(3) FEV1/FVC%

6).**HOSPITAL OP VISITS FOR THE PAST ONE YEAR**.

1. Once or twice a month

2. Six and above times a year

3. Three times a year

4. Rare

(7) **HOSPITAL ADMISSIONS FOR THE PAST ONE YEAR**

1. Not stayed.

2. One to two times a year

3. Three to five times a year

4. Six or more times a year

(8) **TREATMENT FOR THE PAST ONE MONTH**

1.BETA 2 AGONIST USE

1 Yes 2.No if yes

2. **BETA 2 AGONIST FORM**

1-tablet

2-inhaler

3-tablet plus inhaler

3 .STREOID USE.

1 yes 2 no if yes

4.STEROID FORM

1-tablet

2-inhaler

3-intra venous

5.**THEOPHYLLINE or AMINOPHYLLINE** USE

1- yes or2 -no IF yes

6.THEOPHYLLINE or AMINOPHYLLINE FORM

1-tablet

2-intra venous

7. **LEUKOTRIENE RECEPTOR ANTAGONIST**

1 -yes or 2-no

8 ANTI HISTAMINE USE

1 -yes or 2-no

9. ANTIHISTAMINE TYPE

1. CPM

2. CETRIZINE

PSYCHIATRIC DISEASE FACTORS

ANXIETY FACTORS

1 .**FAMILY H/O ANXIETY** 1-YES 2-NO

2. **HAMILTON ANXIETY RATING SCALE (**HAM-A)

(1) Less than or equal to17-normal

(2) 18-24 mild to moderate severity

(3) 25-30 moderate to severe

(4) Above 30 severe

DEPRESSION FACTORS

1.**FAMILY HISTORY OF DEPRESSION** 1-YES 2-NO

2. **BECK'S DEPRESSION INVENTORY (BDI) SCALE**

1. Minimal or normal 0-13

2. Mild-14-19

3. Moderate-20-28

4. Severe-29-63

QUALITY OF LIFE

1.ASTHMA QUALITY OF LIFE QUESTIONNAIRE

1-7 POOR TO GOOD QUALITY OF LIFE

Hamilton Anxiety Rating Scale (HAM-A)

Reference: Hamilton M. The assessment of anxiety states by rating. Br J Med Psychol 1959; 32:50–55.

Rating Clinician-rated

Administration time 10–15 minutes

Main purpose To assess the severity of symptoms of anxiety

Population Adults, adolescents and children

Commentary

The HAM-A was one of the first rating scales developed to measure the severity of anxiety symptoms, and is still widely used today in both clinical and research settings. The scale consists of 14 items, each defined by a series of symptoms, and measures both psychic anxiety (mental agitation and psychological distress) and somatic anxiety (physical complaints related to anxiety). Although the HAM-A remains widely used as an outcome measure in clinical trials, it has been criticized for its sometimes poor ability to discriminate between anxiolytic and antidepressant effects, and somatic anxiety versus somatic side effects. The HAM-A does not provide any standardized probe questions. Despite this, the reported levels of inter-rater reliability for the scale appear to be acceptable.

Scoring

Each item is scored on a scale of 0 (not present) to 4 (severe), with a total score range of 0–56, where <17 indicates mild severity, 18–24 mild to moderate severity and 25–30 moderate to severe.

Versions

The scale has been translated into: Cantonese for China, French and Spanish. An IVR version of the scale is available from Healthcare Technology Systems.

Additional references

Maier W, Buller R, Philipp M, Heuser I. The Hamilton Anxiety Scale: reliability, validity and sensitivity to change in anxiety and depressive disorders. J Affect Disord 1988;14(1):61–8.

Borkovec T and Costello E. Efficacy of applied relaxation and cognitive behavioral therapy in the treatment of generalized anxiety disorder. J Clin Consult Psychol 1993; 61(4):611–19

Address for correspondence

Hamilton Anxiety Rating Scale (HAM-A)

Below is a list of phrases that describe certain feeling that people have. Rate the patients by finding the answer which best describes the extent to which he/she has these conditions. Select one of the five responses for each of the fourteen questions.

0 = Not present, 1 = Mild, 2 = Moderate, 3 = Severe, 4 = Very severe.

---

1 Anxious mood [0] [1] [2] [3] [4]

Worries, anticipation of the worst, fearful anticipation, irritability.

2 Tension [0] [1] [2] [3] [4]

Feelings of tension, fatigability, startle response, moved to tears easily, trembling, feelings of restlessness, inability to relax.

3 Fears [0] [1] [2] [3] [4]

Of dark, of strangers, of being left alone, of animals, of traffic, of crowds.

4 Insomnia [0] [1] [2] [3] [4]

Difficulty in falling asleep, broken sleep, unsatisfying sleep and fatigue on waking, dreams, nightmares, night terrors.

5 Intellectual [0] [1] [2] [3] [4]

Difficulty in concentration, poor memory.

6 Depressed mood [0] [1] [2] [3] [4]

Loss of interest, lack of pleasure in hobbies, depression, early waking, diurnal swing.

7 Somatic (muscular) [0] [1] [2] [3] [4]

Pains and aches, twitching, stiffness, myoclonic jerks, grinding of teeth, unsteady voice, increased muscular tone.

8 Somatic (sensory) [0] [1] [2] [3] [4]

Tinnitus, blurring of vision, hot and cold flushes, feelings of weakness, pricking sensation.

9 Cardiovascular symptoms [0] [1] [2] [3] [4]

Tachycardia, palpitations, pain in chest, throbbing of vessels, fainting feelings, missing beat.

10 Respiratory symptoms [0] [1] [2] [3] [4]

Pressure or constriction in chest, choking feelings, sighing, dyspnea.

11 Gastrointestinal symptoms [0] [1] [2] [3] [4]

Difficulty in swallowing, wind abdominal pain, burning sensations, abdominal fullness, nausea, vomiting, borborygmi, looseness of bowels, loss of weight, constipation.

12 Genitourinary symptoms [0] [1] [2] [3] [4]

Frequency of micturition, urgency of micturition, amenorrhea, menorrhagia, development of frigidity, premature ejaculation, loss of libido, impotence.

13 Autonomic symptoms [0] [1] [2] [3] [4]

Dry mouth, flushing, pallor, tendency to sweat, giddiness, tension headache, raising of hair.

14 Behavior at interview [0] [1] [2] [3] [4]

Fidgeting, restlessness or pacing, tremor of hands, furrowed brow, strained face, sighing or rapid respiration, facial pallor, swallowing, etc.

BECKS DEPRESSIONINVENTORY-II

1. Sadness

0 I do not feel sad.
1 I feel sad much of the time.
2 I am sad all the time.
3 I am so sad or unhappy that I can't stand it.

2. Pessimism

0 I am not discouraged about my future.
1 I feel more discouraged about my future than I used to be.
2 I do not expect things to work out for me.
3 I feel my future is hopeless and will only get worse.

3. Past Failure

0 I do not feel like a failure.
1 I have failed more than I should have.
2 As I look back, I see a lot of failures.
3 I feel I am a total failure as a person.

4. Loss of Pleasure

0 I get as much pleasure as I ever did from the things I enjoy.
1 I don't enjoy things as much as I used to.
2 I get very little pleasure from the things I used to enjoy.
3 I can't get any pleasure from the things I used to enjoy.

5. Guilty Feelings

0 I don't feel particularly guilty.
1 I feel guilty over many things I have done or should have done.
2 I feel quite guilty most of the time.
3 I feel guilty all of the time.

6. Punishment Feelings

0 I don't feel I am being punished.
1 I feel I may be punished.
2 I expect to be punished.
3 I feel I am being punished.

7. Self-Dislike

0 I feel the same about myself as ever.
1 I have lost confidence in myself.
2 I am disappointed in myself.
3 I dislike myself.

8. Self-Criticalness

0 I don't criticize or blame myself more than usual.
1 I am more critical of myself than I used to be.
2 I criticize myself for all of my faults.
3 I blame myself for everything bad that happens.

9. Suicidal Thoughts or Wishes

0 I don't have any thoughts of killing myself.
1 I have thoughts of killing myself, but I would not carry them out.
2 I would like to kill myself.
3 I would kill myself if I had the chance.

10. Crying

0 I don't cry anymore than I used to.
1 I cry more than I used to.
2 I cry over every little thing.
3 I feel like crying, but I can't.

11. Agitation

0 I am no more restless or wound up than usual.

1 I feel more restless or wound up than usual.

2 I am so restless or agitated that it's hard to stay still.

3 I am so restless or agitated that I have to keep moving or doing something.

12. Loss of Interest

0 I have not lost interest in other people or activities.

1 I am less interested in other people or things than before.

2 I have lost most of my interest in other people or things.

3 It's hard to get interested in anything.

13. Indecisiveness

0 I make decisions about as well as ever.

1 I find it more difficult to make decisions than usual.

2 I have much greater difficulty in making decisions than I used to.

3 I have trouble making any decisions.

14. Worthlessness

0 I do not feel I am worthless.

1 I don't consider myself as worthwhile and useful as I used to.

2 I feel more worthless as compared to other people.

3 I feel utterly worthless.

15. Loss of Energy

0 I have as much energy as ever.

1 I have less energy than I used to have.

2 I don't have enough energy to do very much.

3 I don't have enough energy to do anything.

16. Changes in Sleeping Pattern

0 I have not experienced any change in my sleeping pattern.

1a I sleep somewhat more than usual.

1b I sleep somewhat less than usual.

2a I sleep a lot more than usual.

2b I sleep a lot less than usual.

3a I sleep most of the day.

3b I wake up 1–2 hours early and can't get back to sleep.

17. Irritability

0 I am no more irritable than usual.

1 I am more irritable than usual.

2 I am much more irritable than usual.

3 I am irritable all the time.

18. Changes in Appetite

0 I have not experienced any change in my appetite.

1a My appetite is somewhat less than usual.

1b My appetite is somewhat greater than usual.

2a My appetite is much less than before.

2b My appetite is much greater than usual.

3a I have no appetite at all.

3b I crave food all the time.

19. Concentration Difficulty

0 I can concentrate as well as ever.

1 I can't concentrate as well as usual.

2 It's hard to keep my mind on anything for very long.

3 I find I can't concentrate on anything.

20. Tiredness or Fatigue

0 I am no more tired or fatigued than usual.

1 I get more tired or fatigued more easily than usual.

2 I am too tired or fatigued to do a lot of the things I used to do.

3 I am too tired or fatigued to do most of the things I used to do.

21. Loss of Interest in Sex

0 I have not noticed any recent change in my interest in sex.

1 I am less interested in sex than I used to be.

2 I am much less interested in sex now.

3 I have lost interest in sex completely.

BDI-1 Sadness			
	நான் கவலையுடன் இருக்கவில்லை	0	
	நான் கவலையுடன் இருக்கிறேன்.	1	
	நான் எப்போதும் கவலையுடன் இருக்கிறேன். அதிலிருந்துமீளமுடியவில்லை	2	
	நான் கவலையுடன் இருப்பதை என்னால் தாங்கிக் கொள்ளமுடியவில்லை	3	
BDI-2 Pessimism			
	வருங்காலத்தைப் பற்றி நல்லபடியாக இருக்கு மெனநினைக்கிறேன்	0	
	எதிர் காலத்தைப் பற்றிமிகவும் கவலையாக இருக்கிறேன்.	1	
	நான் எப்போதும் கவலையுடன் இருக்கிறேன். அதிலிருந்துமீளமுடியவில்லை	2	
	எதிர்காலம் பற்றிய நம்பிக்கையிழந்து அதிலிருந்துமீளமுடியாது என்று நினைக்கிறேன	3	
BDI-3 Past Failure			
	நான் தோல்வியடைந்ததாகஉணரவில்லை	0	
	நான் ஒரு சாதாரணமான மனிதனைவிட அதிகமாக தோல்வியடைந்துள்ளேன்.	1	
	நன்மையானவை எனக்கு ஓரளவே கிடைத்துள்ளது	2	
	நான் முற்றிலும் தோல்வியடைந்த மனிதனாக நினைக்கிறேன். (பெற்றோர், கணவன், மனைவி என்ற முறையில்)	3	
BDI-4 Loss of Pleassure			
	நான் குறிப்பிடத் தகுந்தமுறையில் திருப்தியற்றவனாக இல்லை	0	
	இதற்கு முன்பு எவ்வாறு சந்தோசமான அனுபவித்துக் கொண்டிருந்தேனோ அதுமாதிரி இப்போது இருக்கமுடியவில்லை.	1	
	எந்த ஒரு பொருளிலோ, நிகழ்ச்சியிலோ நான் திருப்தியடைய முடியவில்லை.	2	
	எல்லாவற்றிலும் திருப்தி இல்லாதவனாக இருக்கிறேன்.	3	
BDI-5 Guilty Feelings			
	நான் உபயோகமில்லாதவனாக உணரவில்லை	0	
	சந்தோசமான நேரங்களில் கூட நான் மோசம்,உதவாக்கரை என்று உணர்கிறேன்.	1	
	எல்லா நேரத்திலும் யாருக்கும் உபயோகமில்லாத மனிதனாக உணர்கிறேன். குற்ற உணர்வுடனிருக்கிறேன்.	2	
	நான் மிகவும் கெட்டவனாகவோ அல்லது எதற்கும் உபயோகமில்லாதவனாகவோ பெரும்பாலும் உணர்கிறேன்.	3	
BDI-6 Punishment feelings			
	நான் தண்டிக்கப்படுவதாக நினைக்கவில்லை	0	
	எனக்கு நிச்சயம் தண்டணை கிடைக்கலாம் என உணர்கிறேன்	1	
	எனக்கு தண்டணை கிடைக்க விரும்புகிறேன்	2	
	நான் தண்டணை பெறத் தகுதியுடையவனாக நினைக்கிறேன்.	3	

BDI-7 Self –Dislike			
	என்னிடத்தில் எனக்கு ஏமாற்றமில்லை	0	
	நான் ஏமாற்றமடைந்திருக்கிறேன்	1	
	நான் என்னையே விரும்பவில்லை	2	
	நான் என்னையே வெறுக்கிறேன்	3	
BDI-8 Self –Critisism			
	மற்ற எவரையும் விட நான் மோசமானவன் என்று நினைக்கவில்லை	0	
	நான் என்னுடைய தவறுகளுக்காக என்னையே கடுமையாக விமர்சித்துக் கொள்பவன்	1	
	என் தவறுகள் அனைத்திற்கும் நானே காரணம் என நினைக்கிறேன்	2	
	தவறாக நடக்கும் எல்லா காரியங்களுக்கும் நானே காரணம் என நினைக்கிறேன்.	3	
BDI -9 Self – Suicidical Thoughts or Wishes			
	என்னை நானே துன்புறுத்திக் கொள்ள நினைக்கவில்லை	0	
	என்னை நானே துன்புறுத்திக் கொள்ளநினைக்கிறேன். ஆனால்,அதைநிறைவேற்றிக் கொள்ளமுடியவில்லை.	1	
	நான் தற்கொலை செய்து கொள்ள வேண்டிய திட்டங்களுடன் இருக்கிறேன்.	2	
	என்னால் முடியுமானால் என்னை நானே கொலை செய்துக் கொள்வேன்	3	
BDI-10 Crying			
	சாதாரணமாகநான் அழுவதுகிடையாது	0	
	இதற்குமுன்புஉள்ளதைவிட இப்போது அதிகம் அழுகிறேன்	1	
	இப்போது எல்லா நேரங்களிலும் அழுகிறேன். என்னால் நிறுத்தமுடியவில்லை.	2	
	இப்போதெல்லாம் நான் அழவேண்டுமென்று விரும்பினால் கூட அழமுடியவில்லை.	3	
BDI-11 Agitation			
	இப்போது நான் இதற்கு முன்பு உள்ளதை விட எரிச்சல் படுவது கிடையாது	0	
	இப்போதெல்லாம் எனக்கு எளிதாக எரிச்சல் ஏற்பட்டுவிடுகிறது	1	
	சந்தோசமான நேரங்களில் கூட சில சமயங்களில் எரிச்சல் ஏற்படுகிறது.	2	
	எல்லா வேளைகளிலும் எனக்குஎரிச்சல் உண்டாகிறது.	3	
BDI-12 Loss of Interest			
	மற்றவர்களிடம் எனக்கு உள்ள ஈடுபாடு ஒன்றும் குறையவில்லை	0	
	இதற்கு முன்பு இருந்ததைவிட மற்றவர்களின் மேல் எனக்கு உள்ள ஈடுபாடு சிறிது குறைந்து காணப்படுகிறது.	1	
	மற்றவர்களின் மேல் உள்ள எனது விருப்பம் பெரும்பாலும் குறைந்துள்ளது	2	
	மற்றவர்களின் மேல் உள்ள எனது விருப்பம் முழுவதுமாகக் குறைந்து அவர்களைப் பற்றிய அக்கறை ஏதும் எனக்குக் கிடையாது.	3	

BDI-13 Indecisiveness		
	எப்போதும் போல் ஒருகாரியத்தைப் பற்றிநல்லபடியாகத் தீர்மானிக்கமுடிகிறது.	0
	ஏதாவது காரியங்களில் முடிவு எடுப்பதை நான் நிறுத்திவைத்துக் கொள்கிறேன். ஏனெனில் என் மீதே எனக்கு நம்பிக்கை இல்லை.	1
	மற்றவர்கள் உதவி இல்லாமல் எந்த ஒரு காரியத்தை தீர்மானிக்க	2
	இப்போது எந்தக் காரியத்தைப் பற்றியும் முடிவு எடுக்கவே முடியவில்லை	3
BDI -14 Worthlessness		
	இதற்கு முன்பு இருந்ததைவிடப் பார்ப்பதற்கு நான் மோசமாக இல்லை	0
	நான் வயதானவரைப் போன்று காட்சியளிப்பதாகவோ,அல்லது கவர்ச்சியற்று காணப்படுவதாகவோநினைத்துமிகவும் கவலையடைந்துள்ளேன்.	1
	என்னுடைய உடல் தோற்றத்தில் நிரந்தரமானமாற்றங்கள் ஏற்பட்டுநான் பார்ப்பதற்குகவர்ச்சியற்றவனாகக் காணப்படுவதாகஉணர்கிறேன்.	2
	நான் அவலட்சணமாகதோற்றமளிப்பதாகஉணர்கிறேன்.	3
BDI-15 Loss of Energy		
	முன்பு காரியங்களைச் செய்ய முடிந்த மாதிரியே இப்போது செய்கிறேன்.	0
	ஏதாவது வேலையை செய்ய ஆரம்பிக்க அதிகப்படியான முயற்சி தேவைப்படுகிறது	1
	ஏதாவது ஒரு வேலையைச் செய்ய என்னை மிகவும் வருத்திக் கொள்ள வேண்டியுள்ளது	2
	எந்தவேலையும் என்னால் செய்ய முடிவதில்லை.	3
BDI-16 Changes in Sleeping Patterns		
	எப்போதும் போல் என்னால் நன்றாக தூங்கமுடிகிறது	0
	வழக்கத்திற்குமாறாகஒன்றுஅல்லது இரண்டுமணிநேரம் அதிகமாக தூங்கு கிறேன்..	1 a
	வழக்கத்திற்குமாறாக ஒன்றுஅல்லது இரண்டுமணிநேரம் குறை தூங்கு கிறேன்.	1 b
	இதற்கு முன்பு உள்ளதைவிட ஐந்துமணிநேரத்திற்குமேல் அதிகமாக தூங்கு கிறேன்..	2a
	இதற்கு முன்பு உள்ளதைவிட ஐந்துமணிநேரத்திற்குமேல் இப்போதுகாலையில சீக்கிரம் எழுந்துவிடுகிறேன்	2b
	மிக அதிகமாக தூங்கு கிறேன்.எழுந்திருக்கும் போது மிகவும் களைப்பாக உள்ளது	3a
	ஒவ்வொருநாளும் காலையில் சீக்கிரம் எழுந்துவிடுகிறேன்.. எழுந்திருக்கும் போது மிகவும் களைப்பாகஉள்ளது	3b
BDI-17 Irritability		
	சாதாரணமானது அல்லாமல் அதிகமாக எனக்கு கோபம் என்பதுஏற்படுவதில்லை.	0

	வழக்கத்திற்குமாறாகஎனக்கு இப்போதுஅதிகமான கோபம் ஏற்படுகிறது.	1
	எந்தஒருகாரியமும் செய்யும் போதுஎனக்கு கோபம் ஏற்படுகிறது.	2
	எந்தஒருகாரியமும் செய்வதற்கும மிகுந்த கோபம் ஏற்படுகிறது	3
BDI-18 Changes in Appetite		
	எனக்கு வழக்கம் போலவே பசி எடுப்பது மோசமாக இல்லை	0
	சுாதாரணமாக இருப்பதுபோல் எனக்குபசிஎடுப்பது அவ்வளவு நன்றாக இல்லை	1a
	சுாதாரணமாக இருப்பதுபோல் அல்லாமல் எனக்குபசிஎடுப்பது அதிகமாக உள்ளது.	1b
	இப்போதுஎனக்குபசிஎடுப்பதுமிகவும் மோசமாகஉள்ளது	2a
	இப்போதுஎனக்குபசிஎடுப்பதுமிகவும் அதிகமாக உள்ளது	2b
	எனக்கு எப்போதும் பசியேஎடுப்பதில்லை.	3a
	எனக்கு எப்போதும் மிக பசி அதிகமாக உள்ளது	3b
BDI-19 Tiredness or Fatigue		
	சாதாரணமானது அல்லாமல் அதிகமாக எனக்குகளைப்பு என்பதுஏற்படுவதில்லை.	0
	வழக்கத்திற்குமாறாகஎனக்கு இப்போதுஅதிகமானகளைப்பு ஏற்படுகிறது.	1
	எந்தஒருகாரியமும் செய்யும் போதுஎனக்குகளைப்பு ஏற்படுகிறது.	2
	எந்தஒருகாரியமும் செய்வதற்கும மிகுந்த களைப்பு ஏற்படுகிறது.	3
BDI-20 Concentrations Difficulty		
	வழக்கத்திற்கு மாறாக நான் என்னுடைய உடல் நலனைப் பற்றி அக்கறை கொண்டதில்லை	0
	உடம்பில் ஏற்படுபவன போன்ற உபாதைகளுக்காக அல்லது வயிற்றில் ஏற்படும் கோளாறு அல்லது மலச்சிக்கல் அல்லது மற்றுமுள்ள உடலில் ஏற்படும் விருப்பத்தகாத உணர்வுகளுக்காக என்று கவலைப்பட்டிருக்கிறேன்.	1
	நான் எவ்வாறு உணர்கிறேன் அல்லது எதைப்பற்றி உணர்கிறேன் என்பதை நினைக்க கடினமாக உள்ளதைப் பற்றியும் அக்கறை கொண்டுள்ளேன்.	2
	நான் எப்படி உணர்கிறேன் என்பதிலேயே முழுவதுமாக ஊன்றிவிடுகிறேன்.	3
BDI-21 Loss of Interest in Sex		
	பால் உறவுசம்பந்தமாகஉள்ளஆர்வத்தில் என்னிடத்தில் சமீபத்தில் மாற்றம் ஏதும் ஏற்பட்டதாகஎனக்குதெரியவில்லை	0

	இதற்குமுன்பு இருந்ததைவிட இப்போதுஎனக்குபால் உறவுசம்பந்தமாகசிறிதுஆர்வம் குறைந்தள்ளது.	1
	இப்போதுஎனக்குபால் உறவுசம்பந்தமானவற்றில் ஆர்வம் மிகவும் குறைவாக உள்ளது.	2
	எனக்குபால் உறவுசம்பந்தமானவற்றில் முற்றிலும் ஆர்வம் குறைந்துள்ளது.	3

Enter Name

Enter Address

Enter City/State/Zip

Today's Date: _____

Patient's Name: _____

FOR PATIENTS:

Take the Asthma Control Test™ (ACT) for people 12 yrs and older.

Know your score. Share your results with your doctor.

Step 1 Write the number of each answer in the score box provided.

Step 2 Add the score boxes for your total.

Step 3 Take the test to the doctor to talk about your score.

									SCORE
1. In the past **4 weeks**, how much of the time did your **asthma** keep you from getting as much done at work, school or at home?	All of the time	1	Most of the time	2	Some of the time	3	A little of the time	4	None of the time	5	
2. During the past **4 weeks**, how often have you had shortness of breath?	More than once a day	1	Once a day	2	3 to 6 times a week	3	Once or twice a week	4	Not at all	5	
3. During the past **4 weeks**, how often did your **asthma** symptoms (wheezing, coughing, shortness of breath, chest tightness or pain) wake you up at night or earlier than usual in the morning?	4 or more nights a week	1	2 or 3 nights a week	2	Once a week	3	Once or twice	4	Not at all	5	
4. During the past **4 weeks**, how often have you used your rescue inhaler or nebulizer medication (such as albuterol)?	3 or more times per day	1	1 or 2 times per day	2	2 or 3 times per week	3	Once a week or less	4	Not at all	5	
5. How would you rate your **asthma** control during the **past 4 weeks**?	Not controlled at all	1	Poorly controlled	2	Somewhat controlled	3	Well controlled	4	Completely controlled	5	
											TOTAL

If your score is 19 or less, your asthma may not be controlled as well as it could be. Talk to your doctor.

FOR PHYSICIANS:

The ACT is:

- A simple, 5-question tool that is self-administered by the patient
- Clinically validated by specialist assessment and spirometry[1]
- Recognized by the National Institutes of Health

Reference: 1. Nathan RA et al. *J Allergy Clin Immunol.* 2004;113:59-65.

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ஆஸ்துமாவுடன் வாழ்க்கைத் தரம் குறித்த கருத்தறியும் வினாத்தாள்-பொதுவான வேலைகளை உள்ளடக்கியது (AQLQ(S))

சுயமாகப் பூர்த்தி செய்வது
(SELF-ADMINISTERED)
TAMIL VERSION FOR INDIA

(≥12 வயது)

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ஆஸ்துமாவுடன் வாழ்க்கைத் தரம் குறித்த கருத்தறியும் வினாத்தாள் (S)
(TAMIL VERSION FOR INDIA)

நோயாளியின் அடையாள எண் _____

சுயமாகப் பூர்த்தி செய்வது

தேதி _____

ஆஸ்துமாவின் காரணமாக கடந்த 2 வாரங்களில் நீங்கள் எப்படி இருந்தீர்கள் என்பதை சிறப்பாக வெளிப்படுத்தும் எண்ணை வட்டமிட்டு, பின்வரும் **அனைத்துக்** கேள்விகளுக்கும் தயவு செய்து பதிலளிக்கவும்.

உங்கள் ஆஸ்துமாவின் காரணமாக கீழ்க்கண்ட வேலைகளில் கடந்த 2 வாரங்களில் எந்த அளவு பாதிப்புக்கு உள்ளானீர்கள்?

	முழுதாக பாதிப்பு	கடுமையான பாதிப்பு	அதிக பாதிப்பு	மிதமான பாதிப்பு	சிறிதளவு பாதிப்பு	மிகச் சிறிதளவு பாதிப்பு	பாதிப்பே இல்லை
1. **கடினமான வேலைகள்** (விரைவாக நடப்பது, உடற்பயிற்சி, மாடிப்படிகளில் விரைந்து ஏறுதல், விளையாட்டுகள் போன்றவை)	1	2	3	4	5	6	7
2. **மிதமான வேலைகள்** (நடத்தல், வீட்டு வேலைகள், தோட்ட வேலை, கடைக்குச் செல்லுதல், மாடிப்படிகளில் ஏறுதல் போன்றவை)	1	2	3	4	5	6	7
3. **சமூகச் செயல்பாடுகள்** (உரையாடுதல், செல்லப் பிராணிகள்/குழந்தைகளுடன் விளையாடுதல், நண்பர்கள்/ உறவினர்களை சந்திக்கச் செல்லுதல் போன்றவை)	1	2	3	4	5	6	7
4. **பணி/பள்ளி சார்ந்த செயல்பாடுகள்*** (நீங்கள் வேலை செய்யுமிடத்தில்/ பள்ளியில் மேற்கொள்ள வேண்டிய பணிகள்)	1	2	3	4	5	6	7
5. **உறங்குதல்**	1	2	3	4	5	6	7

* நீங்கள் வேலையில் இல்லாதவராக, அல்லது சுயதொழில் செய்பவராக இருந்தால், பெரும்பாலான நாட்களில் செய்ய வேண்டிய வேலைகளாக இவை இருக்க வேண்டும்.

கடந்த 2 வாரங்களில் எந்த அளவுக்கு **உடல்ரீதியான அல்லது உணர்வுரீதியான அவஸ்தைக்கு** உள்ளானீர்கள்?

	மிகமிக அதிகமாக	மிக அதிகமாக	பெரும் அளவு	மிதமான அளவு	சிறிதளவு	மிகச் சிறிதளவு	சுத்தமாக இல்லை
6. கடந்த 2 வாரங்களில் **மார்பு இறுக்கத்தின்** விளைவாக எந்த அளவுக்கு உடல்ரீதியான அல்லது உணர்வுரீதியான அவஸ்தைக்கு உள்ளானீர்கள்?	1	2	3	4	5	6	7

கடந்த 2 வாரங்களில் பின்வரும் விஷயங்களை பொதுவாக **எவ்வளவு நேரம்** அனுபவித்தீர்கள்?

		எல்லா நேரமும்	பெரும் பாலான நேரம்	அதிக நேரம்	சில நேரம்	சிறிது நேரம்	அரிதாக	ஒருபோதும் இல்லை
7.	**ஆஸ்துமா இருப்பது குறித்த கவலைக்கு ஆளானீர்களா?**	1	2	3	4	5	6	7
8.	ஆஸ்துமாவால் **மூச்சுத் திணறல்** ஏற்பட்டதா?	1	2	3	4	5	6	7
9.	**சிகரெட் புகைக்கு உள்ளானதன் காரணமாக** ஆஸ்துமா அறிகுறிகளை அனுபவித்தீர்களா?	1	2	3	4	5	6	7
10.	மார்பில் **மூச்சிரைப்பு** அனுபவித்தீர்களா?	1	2	3	4	5	6	7
11.	**சிகரெட் புகை காரணத்தால் எந்த ஒரு சந்தர்ப்பத்தையோ அல்லது சூழலையோ தவிர்க்க வேண்டும்** என்னும் உணர்வு ஏற்பட்டதா?	1	2	3	4	5	6	7

கடந்த 2 வாரங்களில் எந்த அளவுக்கு **உடல்ரீதியான அல்லது உணர்வுரீதியான அவஸ்தைக்கு** உள்ளானீர்கள்?

		மிகமிக அதிகமாக	மிக அதிகமாக	பெரும் அளவு	மிதமான அளவு	சிறிதளவு	மிகச் சிறிதளவு	சுத்தமாக இல்லை
12.	கடந்த 2 வாரங்களில் **இருமலின்** விளைவாக எந்த அளவுக்கு உடல்ரீதியான அல்லது உணர்வுரீதியான அவஸ்தைக்கு உள்ளானீர்கள்?	1	2	3	4	5	6	7

கடந்த 2 வாரங்களில் பின்வரும் விஷயங்களை பொதுவாக **எவ்வளவு நேரம்** அனுபவித்தீர்கள்?

		எல்லா நேரமும்	பெரும் பாலான நேரம்	அதிக நேரம்	சில நேரம்	சிறிது நேரம்	அரிதாக	ஒருபோதும் இல்லை
13.	ஆஸ்துமாவின் விளைவாக **விரக்தி உணர்வு** ஏற்பட்டதா?	1	2	3	4	5	6	7
14.	**மார்பு கனமாக** இருப்பதான உணர்வை அனுபவித்தீர்களா?	1	2	3	4	5	6	7

கடந்த 2 வாரங்களில் பின்வரும் விஷயங்களை பொதுவாக எவ்வளவு நேரம் அனுபவித்தீர்கள்?

		எல்லா நேரமும்	பெரும் பாலான நேரம்	அதிக நேரம்	சில நேரம்	சிறிது நேரம்	அரிதாக	ஒருபோதும் இல்லை
15.	ஆஸ்துமாவுக்காக மருந்து எடுத்துக்கொள்ள வேண்டியிருக்கிறதே என்ற கவலை ஏற்பட்டதா?	1	2	3	4	5	6	7
16.	தொண்டையை செரும வேண்டும் என்ற உணர்வு ஏற்பட்டதா?	1	2	3	4	5	6	7
17.	தூசு நிறைந்த சூழலுக்கு உள்ளானதன் விளைவாக ஆஸ்துமாவின் அறிகுறிகளை அனுபவித்தீர்களா?	1	2	3	4	5	6	7
18.	ஆஸ்துமாவின் விளைவாக மூச்சை வெளி விடுவதில் சிரமம் ஏற்பட்டதா?	1	2	3	4	5	6	7
19.	தூசு உள்ள சூழல் அல்லது சந்தர்ப்பத்தைத் தவிர்க்க வேண்டும் என்ற உணர்வு ஏற்பட்டதா?	1	2	3	4	5	6	7
20.	காலையில் ஆஸ்துமா அறிகுறிகளுடன் விழித்துக் கொண்டீர்களா?	1	2	3	4	5	6	7
21.	ஆஸ்துமா மருந்துகள் உங்கள் கைவசம் இல்லையே என்ற அச்சத்துக்கு உள்ளானீர்களா?	1	2	3	4	5	6	7
22.	பலமான மூச்சிரைப்பின் காரணமாகக் கவலை அடைந்தீர்களா?	1	2	3	4	5	6	7
23.	வானிலை அல்லது காற்று மாசுபட்டிருந்ததன் விளைவாக ஆஸ்துமா அறிகுறிகளை அனுபவித்தீர்களா?	1	2	3	4	5	6	7
24.	ஆஸ்துமாவினால் இரவுத் தூக்கம் கலைந்து விழித்துக் கொண்டீர்களா?	1	2	3	4	5	6	7
25.	வானிலை அல்லது காற்று மாசடைந்ததன் காரணமாக வெளியே செல்வதைத் தவிர்க்கவோ குறைக்கவோ நேர்ந்ததா?	1	2	3	4	5	6	7

கடந்த 2 வாரங்களில் பின்வரும் விஷயங்களை பொதுவாக **எவ்வளவு நேரம்** அனுபவித்தீர்கள்?

	எல்லா நேரமும்	பெரும் பாலான நேரம்	அதிக நேரம்	சில நேரம்	சிறிது நேரம்	அரிதாக	ஒருபோதும் இல்லை
26. **வாசனைத் திரவியம் அல்லது கடும் நெடியை எதிர்கொள்ள நேர்ந்ததால்** ஆஸ்துமா அறிகுறிகளை அனுபவித்தீர்களா?	1	2	3	4	5	6	7
27. **சுவாசிக்க இயலாமல் போகுமோ என்ற** அச்சத்துக்கு ஆளானீர்களா?	1	2	3	4	5	6	7
28. **வாசனைத் திரவியம் அல்லது கடும் நெடி நிலவுகிற சூழலை அல்லது சந்தர்ப்பத்தைத் தவிர்க்க வேண்டும் என்ற உணர்வு** ஏற்பட்டதா?	1	2	3	4	5	6	7
29. **ஆஸ்துமா இரவுநேர நல்ல உறக்கத்திற்குத் தடங்கலாக இருந்ததா?**	1	2	3	4	5	6	7
30. **சுவாசிப்பதற்குப் போராட வேண்டியிருந்ததாக** உணர்ந்தீர்களா?	1	2	3	4	5	6	7

கடந்த 2 வாரங்களில் எந்த அளவுக்கு வேலைகளில் பாதிக்கப்பட்டீர்கள்?

	கடுமையான பாதிப்பு – பெரும்பாலான வேலைகளை செய்யவில்லை	அதிக அளவு பாதிப்பு	மிதமான பாதிப்பு – பல வேலைகளை செய்யவில்லை	சிறிதளவு பாதிப்பு	மிகச்சிறிதளவு பாதிப்பு – சில வேலைகளை மட்டும் செய்யவில்லை	அரிதான பாதிப்பு	பாதிப்பே இல்லை – செய்ய விரும்பிய வேலைகள் அனைத்தையும் செய்ய முடிந்தது
31. கடந்த 2 வாரங்களில் நீங்கள் செய்ய விரும்பிய **எல்லா வகையான செயல்பாடுகளையும்** எண்ணிப் பாருங்கள். அந்த வேலைகள் செய்வதற்கு ஆஸ்துமா எந்த அளவுக்குத் தடங்கலாக இருந்தது?	1	2	3	4	5	6	7

கடந்த 2 வாரங்களில் எந்த அளவுக்கு வேலைகளில் பாதிக்கப்பட்டீர்கள்?

	முழுதாக பாதிப்பு	கடுமையான பாதிப்பு	அதிக பாதிப்பு	மிதமான பாதிப்பு	சிறிதளவு பாதிப்பு	மிகச் சிறிதளவு பாதிப்பு	பாதிப்பே இல்லை
32. ஒட்டுமொத்தமாகப் பார்த்தால், கடந்த 2 வாரங்களில் நீங்கள் மேற்கொண்ட **அனைத்து** செயல்பாடுகளிலும் ஆஸ்துமா எந்த அளவு பாதிப்பதாக இருந்தது?	1	2	3	4	5	6	7

கேள்விகளின் வகைபாடுகள்:

அறிகுறிகள்: 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 29, 30
வேலைகளில் பாதிப்பு: 1, 2, 3, 4, 5, 11, 19, 25, 28, 31, 32
உணர்வுரீதியான செயல்பாடு: 7, 13, 15, 21, 27
சுற்றுச்சூழல் விளைவுகள்: 9, 17, 23, 26

ASTHMA QUALITY OF LIFE QUESTIONNAIRE WITH STANDARDISED ACTIVITIES (AQLQ(S))

SELF-ADMINISTERED ENGLISH VERSION FOR INDIA

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ASTHMA QUALITY OF LIFE QUESTIONNAIRE (S)
(ENGLISH VERSION FOR INDIA)
SELF-ADMINISTERED

PATIENT ID: _____

DATE: _____

Please complete **all** the questions by circling the number that best describes how you have been during the **last 14 days as a result of your asthma.**

HOW **LIMITED** HAVE YOU BEEN **DURING THE LAST 14 DAYS** IN THESE ACTIVITIES **AS A RESULT OF YOUR ASTHMA**?

	Totally Limited	Extremely Limited	Very Limited	Moderate Limitation	Some Limitation	A Little Limitation	Not at all Limited
1. STRENUOUS ACTIVITIES (such as hurrying, exercising, running up stairs, sports)	1	2	3	4	5	6	7
2. MODERATE ACTIVITIES (such as walking, housework, gardening, shopping, climbing stairs)	1	2	3	4	5	6	7
3. SOCIAL ACTIVITIES (such as talking, playing with pets/children, visiting friends/relatives)	1	2	3	4	5	6	7
4. WORK-RELATED ACTIVITIES (tasks you have to do at work*) **If you are not employed or self-employed, these should be tasks you have to do most days.*	1	2	3	4	5	6	7
5. SLEEPING	1	2	3	4	5	6	7

HOW MUCH **DISCOMFORT OR DISTRESS** HAVE YOU FELT **OVER THE LAST 14 DAYS?**

	A Very Great Deal	A Great Deal	A Good Deal	Moderate Amount	Some	Very Little	None
6. How much discomfort or distress have you felt over the last 14 days as a result of CHEST TIGHTNESS?	1	2	3	4	5	6	7

IN GENERAL, **HOW MUCH OF THE TIME DURING THE LAST 14 DAYS** DID YOU:

	All of the Time	Most of the Time	A Lot of the Time	Some of the Time	A Little of the Time	Hardly Any of the Time	None of the Time
7. Feel CONCERNED ABOUT HAVING ASTHMA?	1	2	3	4	5	6	7
8. Feel SHORT OF BREATH as a result of your asthma?	1	2	3	4	5	6	7
9. Experience asthma symptoms as a RESULT OF BEING EXPOSED TO CIGARETTE SMOKE?	1	2	3	4	5	6	7
10. Experience WHEEZING in your chest?	1	2	3	4	5	6	7
11. Feel you had to AVOID A SITUATION OR ENVIRONMENT BECAUSE OF CIGARETTE SMOKE?	1	2	3	4	5	6	7

HOW MUCH **DISCOMFORT OR DISTRESS** HAVE YOU FELT **OVER THE LAST 14 DAYS?**

	A Very Great Deal	A Great Deal	A Good Deal	Moderate Amount	Some	Very Little	None
12. How much discomfort or distress have you felt over the last 14 days as a result of COUGHING?	1	2	3	4	5	6	7

IN GENERAL, **HOW MUCH OF THE TIME DURING THE LAST 14 DAYS** DID YOU:

	All of the Time	Most of the Time	A Lot of the Time	Some of the Time	A Little of the Time	Hardly Any of the Time	None of the Time
13. Feel FRUSTRATED as a result of your asthma?	1	2	3	4	5	6	7
14. Experience a feeling of CHEST HEAVINESS?	1	2	3	4	5	6	7

IN GENERAL, **HOW MUCH OF THE TIME DURING THE LAST 14 DAYS** DID YOU:

	All of the Time	Most of the Time	A Lot of the Time	Some of the Time	A Little of the Time	Hardly Any of the Time	None of the Time
15. Feel CONCERNED ABOUT THE NEED TO USE MEDICATION for your asthma?	1	2	3	4	5	6	7
16. Feel the need to CLEAR YOUR THROAT?	1	2	3	4	5	6	7
17. Experience asthma symptoms as a RESULT OF BEING EXPOSED TO DUST?	1	2	3	4	5	6	7
18. Experience DIFFICULTY BREATHING OUT as a result of your asthma?	1	2	3	4	5	6	7
19. Feel you had to AVOID A SITUATION OR ENVIRONMENT BECAUSE OF DUST?	1	2	3	4	5	6	7
20. WAKE UP IN THE MORNING WITH ASTHMA SYMPTOMS?	1	2	3	4	5	6	7
21. Feel AFRAID OF NOT HAVING YOUR ASTHMA MEDICATION AVAILABLE?	1	2	3	4	5	6	7
22. Feel bothered by HEAVY BREATHING?	1	2	3	4	5	6	7
23. Experience asthma symptoms as a RESULT OF THE WEATHER OR AIR POLLUTION OUTSIDE?	1	2	3	4	5	6	7
24. Were you WOKEN AT NIGHT by your asthma?	1	2	3	4	5	6	7
25. AVOID OR LIMIT GOING OUTSIDE BECAUSE OF THE WEATHER OR AIR POLLUTION?	1	2	3	4	5	6	7

IN GENERAL, **HOW MUCH OF THE TIME DURING THE LAST 14 DAYS** DID YOU:

	All of the Time	Most of the Time	A Lot of the Time	Some of the Time	A Little of the Time	Hardly Any of the Time	None of the Time
26. Experience asthma symptoms as a RESULT OF BEING EXPOSED TO STRONG SMELL OR PERFUME?	1	2	3	4	5	6	7
27. Feel AFRAID OF GASPING FOR BREATH?	1	2	3	4	5	6	7
28. Feel you had to AVOID A SITUATION OR ENVIRONMENT BECAUSE OF STRONG SMELL OR PERFUME?	1	2	3	4	5	6	7
29. Has your asthma INTERFERED WITH GETTING A GOOD NIGHT'S SLEEP?	1	2	3	4	5	6	7
30. Have a feeling of STRUGGLING TO BREATHE?	1	2	3	4	5	6	7

HOW LIMITED HAVE YOU BEEN **DURING THE LAST 14 DAYS**?

	Severely limited - Most activities not done	Very limited	Moderately limited - Several activities not done	Slightly limited	Very slightly limited - Very few activities not done	Hardly limited at all	Not limited at all - Have done all activities that I wanted to do
31. Think of the OVERALL RANGE OF ACTIVITIES that you would have liked to have done during the last 14 days. How much has your range of activities been limited by your asthma?	1	2	3	4	5	6	7

HOW LIMITED HAVE YOU BEEN **DURING THE LAST 14 DAYS**?

	Totally Limited	Extremely Limited	Very Limited	Moderate Limitation	Some Limitation	A Little Limitation	Not at all Limited
32. Overall, in ALL THE ACTIVITIES that you have done during the last 14 days, how limited have you been by your asthma?	1	2	3	4	5	6	7

DOMAIN CODE:

Symptoms: 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 29, 30
Activity Limitation: 1, 2, 3, 4, 5, 11, 19, 25, 28, 31, 32
Emotional Function: 7, 13, 15, 21, 27
Environmental Stimuli: 9, 17, 23, 26

ஆஸ்துமா நோயாளிகளிடையே மன நல பாதிப்பு மற்றும் அவர்களின் வாழ்க்கைத்தரம் குறித்து ஓர் மதிப்பீட்டு ஆய்வு

தகவல் :

ஆராய்ச்சியின் நோக்கமும், பயன்களும்

உங்கள் பங்கேற்பு திட்டமிடப்பட்டுள்ள இந்த மருத்துவ ஆராய்ச்சி ஆய்வின்

நோக்கம் :

பதட்ட நோய் மற்றும் மன அழுத்த நோய், ஆஸ்துமா நோயாளிகளுக்கு பொதுவாக காணப்படுகிறது. இந்த மனநோய்கள் நமக்கு உடல் நல குறைபாட்டை உண்டு பண்ணுவதோடல்லாமல், நமது மருத்துவ செலவினங்களையும் அதிகப்படுத்துகிறது. பதட்ட நோய், அதிகப்படியான உளவியல் எதிர்வினைகள் ஏற்படுத்தி ஆஸ்துமா நோயை தீவிரமாக்குகின்றது. பதட்ட நோய் மற்றும் மன அழுத்தம், ஆஸ்துமா நோயாளிகளின் நோயின் தன்மையை அதிகப்படுத்தி சமூக மற்றம் தொழில் சார் சூழலில் அவர்களது தனிப்பட்ட பங்கினை பழுதாக்குகிறது. மன அழுத்தம் மற்றும் பதட்ட நோய் போன்ற மன நோய்கள் ஆஸ்துமா நோயாளிகளிடையே அதிகரித்து வரும் இன்றைய சூழ்நிலையில் அந்த நோய்களை மதிப்பீடு செய்வது அவசியமாகிறது. இதுவே நம் ஆய்வின் நோக்கம். அவ்வாறு மதிப்பீடு செய்வதன் மூலம் ஆஸ்துமா நோயோடு, இந்த மன நோய்களுக்கும் தகுந்த மருத்துவம் செய்து நோயாளிகளின் வாழ்க்கை தரத்தை உயர்த்தலாம். பதட்ட நோய் மற்றும மன அழுத்த நோய் கண்டுபிடிக்கப்பட்டால், ஆஸ்துமா நோயாளிகள் மன நல துறைக்கு சிகிச்சைக்கு பரிந்துரை செய்யப்படுவார்கள்.

ஆய்வு நடைமுறைகள்:

குழந்தைகள், பதட்ட நோய் மற்றும் மன அழுத்த நோய்களுக்கு ஏற்கனவே சிகிச்சையில் உள்ளவர்கள் தவிர நெஞ்சக நோய் சிகிச்சை துறைக்கு வரும் ஒரு ஆண்டுக்கு மேல் சிகிச்சையலிருக்கும் ஆஸ்துமா நோயாளிகள் ஆய்வுக்கு தகுதியானவர்கள்.

அந்தரங்க தன்மை:

உங்கள் மருத்துவப் பதிவேடுகள் மிகவும் அந்தரங்கமாக வைத்துக் கொள்ளப்படும் மற்றும் இன்ன பிற மருத்துவர்கள் விஞ்ஞானிகள் இந்த ஆய்வின் தனணிக்கையாளர்கள் அல்லது ஆராய்ச்சி ஆதரவாளர்களின் பிரதிநிதிகள் ஆகியோரிடமும் அவை வெளிப்படுத்தப்படும். இந்த ஆய்வின் முடிவுகள் அறிவியல் பத்திரிக்கைகளில் பிரசுரிக்கப்படலாம். ஆனால், பெயரை வெளியிடுவதன் மூலம் நோயாளிகள் அடையாளம் காட்டப்பட மாட்டார்கள்.

ஆய்வில் உங்கள் பங்கேற்பு மற்றும் உங்கள் உரிமைகள் :

இந்த ஆய்வில் உங்கள் பங்கேற்பு முழுவதும் உங்களுடைய விருப்பத்தைச் சார்ந்தது. இதில் நீங்கள் பங்கேற்க மறுக்கவோ, பாதியில் வெளியேறி விடவோ அல்லது குறிப்பிட்ட கேள்விகளுக்கு விடையளிக்க மறுக்கவோ, உங்களுக்கு முழு உரிமை உண்டு. எப்படி இருந்தாலும் உங்கள் உடல் நிலைக்கேற்ப, உங்களுக்கு பொருத்தமான சிகிச்சை தொடர்ந்து அளிக்கப்படும். தாங்கள் இது குறித்து வேறு விபரங்கள் தெரிந்து கொள்ள விரும்பினால், எங்களிடம் கேட்டுத் தெரிந்து கொள்ளலாம்.

மேலும் விபரங்கள் அறிய கீழ் கண்ட நபரை அணுகவும் :

மரு.S.ரெங்கநாதன்,
கைப்பேசி எண்.9790532950

(தனியாகப் பிரித்தெடுத்து ஆய்வில் பங்கேற்பவரிடம் தரப்பட வேண்டும்)

சுய ஒப்புதல் படிவம் : நோயாளி

ஆய்வின் பெயர்	:	**ஆஸ்துமா நோயாளிகளிடையே** மன நல பாதிப்பு **மற்றும் அவர்களின் வாழ்க்கைத்தரம் குறித்து ஓர் மதிப்பீட்டு ஆய்வு**
ஆராய்ச்சி நிலையம்	:	நெஞ்சக நோய் சிகிச்சைத் துறை, அரசு ஸ்டான்லி மருத்துவமனை, சென்னை-600 001
பங்கு பெறுபவரின் பெயர்	:	
பங்கு பெறுபவரின் எண்	:	
நோயாளி இதனை (√) குறிக்கவும் :		
மேலே குறிப்பிடப்பட்டுள்ள மருத்துவ ஆய்வின் விவரங்கள் எனக்கு விளக்கப்பட்டது. என்னுடைய சந்தேகங்களை கேட்கவும் அதற்கான தகுந்த விளக்கங்களைப் பெறவும் வாய்ப்பளிக்கப்பட்டது.		☐
நான் இந்த ஆய்வில் தன்னிச்சையாகத்தான் பங்கேற்கிறேன். எந்த காரணத்தினாலும் எந்த கட்டத்திலும் எந்த சட்டச் சிக்கலுக்கும் உட்படாமல் நான் இந்த ஆய்வில் இருந்து விலகிக் கொள்ளலாம் என்று அறிந்துகொள்கிறேன்		☐
இந்த ஆய்வுச் சம்பந்தமாகவும், இதைச் சார்ந்த மேலும் ஆய்வு மேற்கொள்ளும் போதும், இந்த ஆய்வில் பங்கு பெறும் மருத்துவர் என்னுடைய மருத்துவ அறிக்கைகளைப் பார்ப்பதற்கு என் அனுமதி தேவையில்லை என அறிந்து கொள்கிறேன். நான் ஆய்வில் இருந்து விலகிக் கொண்டாலும் இது பொருந்தும் என அறிகிறேன்.		☐
இந்த ஆய்வின் மூலம் கிடைக்கும் தகவல்களையும், பரிசோதனை முடிவுகளையும், மற்றும் சிகிச்சை தொடர்பான தகவல்களையும், மருத்துவர் மேற்கொள்ளும் ஆய்வில் பயன்படுத்திக் கொள்ளவும், அதை பிரசுரிக்கவும்/பதிப்பிக்கவும் என் முழு மனதுடன் சம்மத்திக்கிறேன்.		☐

இந்த ஆய்வில் பங்கு கொள்ள ஒப்புக்கொள்கிறேன். எனக்கு கொடுக்கப்படும் அறிவுரைகளின்படி நடந்து கொள்வதுடன் இந்த ஆய்வை மேற்கொள்ளும் மருத்துவ அணிக்கு உண்மையுடன் இருப்பேன் என்றும் உறுதி அளிக்கின்றேன்.	☐

பங்கேற்பவரின் /உறவினரின் கையொப்பம் .....

இடம் ..... தேதி.....

கட்டை விரல் ரேகை ...

பங்கேற்பவரின் காப்பாளரின் கையொப்பம்

இடம் ..... தேதி.....

கட்டை விரல் ரேகை ...

பங்கேற்பவரின் பெயர் மற்றும் விலாசம்

ஆய்வாளரின் கையொப்பம்

இடம் ..... தேதி.....

ஆய்வாளரின் பெயர் .....

நோயாளியின் பெயர் .....

பாலினம் ஆண் ..... பெண் .....

வயது ..... ஆண்டுகள் அல்லது பிறந்த தேதி .....

நோயாளியை தொடர்பு கொள்ளும் முகவரி

.....

.....

.....

நோயாளியின் தொலைபேசி எண்.

நோயாளியின் தந்தை/கணவர்/உறவினர் பெயர் .....

		பங்கேற்பவரின் கையொப்பம்/பெருவிரல் பதிப்பு
1.	மேலே குறிப்பிடப்பட்டுள்ள மருத்துவ ஆய்வின் _____ தேதியிட்ட நோயாளிகளுக்கான செய்தி நான் படித்திருக்கிறேன் மற்றும் புரிந்திருக்கிறேன்/விவரிக்கப்பட்டுள்ளேன். கேள்விகள் கேட்கவும் அனுமதி வழங்கப்பட்டுள்ளேன் என நான் உறுதி செய்கிறேன்.	
2.	இந்த ஆய்வில் பங்கேற்பது என் சொந்த விருப்பப்படியே என நான் அறிந்திருக்கிறேன். மேலும் என் மருத்துவ சிகிச்சை கவனிப்பு அல்லது சட்டபூர்வ உரிமைகளுக்கு பாதிப்பு ஏற்படாமல் நான் எந்த நேரததிலும் விலகிக் கொள்ளலாம் என்பதை அறிந்திருக்கிறேன்.	
3.	எத்திக்ஸ் கமிட்டி மற்றும் ரெகுலேட்டரி அத்தாரிட்டீஸ்க்கும் நான் இந்த ஆய்விலிருந்து விலகினாலும் தற்போதைய மற்றும் எதிர்கால இந்த ஆய்வு சார்ந்த என் உடல்நல குறிப்புகளை என் அனுமதியின்றி பார்க்க முடியும் என நான் அறிகிறேன். நான் ஆய்வில் இருந்து விலகிக் கொண்டாலும் இது பொருந்தும் என அறிகிறேன்.	
4.	இந்த ஆய்வின் மூலம் கிடைக்கப்பெறும் குறிப்புகளையும் தகவல்களையும் மற்றும் பரிசோதனை முடிவுகளையும், உபயோகப்படுத்த தடை செய்ய மாட்டேன் என சம்மதிக்கிறேன். அதனால், அவைகள் விஞ்ஞானம், ஆராய்ச்சிக் கட்டுரைகள் போன்ற சம்மந்தப்பட்டவைகளக்கு பயன் உள்ளதாக இருக்க வேண்டும். இக்குறிப்புகள், அதன் விளக்கங்கள், ஆய்வுக் கட்டுரைகள் ஆகியவற்றை பிரசுரிக்கவும்/பதிப்பிக்கவும் என் முழு மனதுடன் சம்மதிக்கிறேன்.	
5.	மேற்கூறிய ஆய்வில் என் சுய விருப்பத்தின்படி பங்கு கொள்ள நான் சம்மதிக்கிறேன்	

ஆய்வில் பங்கேற்பவர்/சட்டப்பூர்வமாக ஏற்கப்பட்ட நபர் கை
பதிப்பு

சுய ஒப்புதல் படிவம் : நோயாளி உறவினர்

ஆய்வின் பெயர்	:	**ஆஸ்துமா நோயாளிகளிடையே மன நல பாதிப்பு மற்றும் அவர்களின் வாழ்க்கைத்தரம் குறித்து ஓர் மதிப்பீட்டு ஆய்வு.**
ஆராய்ச்சி நிலையம்	:	நெஞ்சக நோய் சிகிச்சைத் துறை, அரசு ஸ்டான்லி மருத்துவமனை, சென்னை-600 001
பங்கு பெறுபவரின் பெயர்	:	
பங்கு பெறுபவரின் எண்	:	
நோயாளி உறவினர் இதனை (√) குறிக்கவும் :		
மேலே குறிப்பிடப்பட்டுள்ள மருத்துவ ஆய்வின் விவரங்கள் எனக்கு விளக்கப்பட்டது. என்னுடைய சந்தேகங்களை கேட்கவும் அதற்கான தகுந்த விளக்கங்களைப் பெறவும் வாய்ப்பளிக்கப்பட்டது.		☐
நான் / என உறவினர் இந்த ஆய்வில் தன்னிச்சையாகத்தான் பங்கேற்கிறேன். எந்த காரணத்தினாலும் எந்த கட்டத்திலும் எந்த சட்டச் சிக்கலுக்கும் உட்படாமல் நான/ என உறவினர் இந்த ஆய்வில் இருந்து விலகிக் கொள்ளலாம் என்று அறிந்துகொள்கிறேன்		☐
இந்த ஆய்வுச் சம்பந்தமாகவும், இதைச் சார்ந்த மேலும் ஆய்வு மேற்கொள்ளும் போதும், இந்த ஆய்வில் பங்கு பெறும் மருத்துவர் என்னுடைய மருத்துவ அறிக்கைகளைப் பார்ப்பதற்கு என் அனுமதி தேவையில்லை என அறிந்து கொள்கிறேன். நான/ என உறவினர் ஆய்வில் இருந்து விலகிக் கொண்டாலும் இது பொருந்தும் என அறிகிறேன்.		☐
இந்த ஆய்வின் மூலம் கிடைக்கும் தகவல்களையும், பரிசோதனை முடிவுகளையும், மற்றும் சிகிச்சை தொடர்பான தகவல்களையும், மருத்துவர் மேற்கொள்ளும் ஆய்வில் பயன்படுத்திக் கொள்ளவும், அதை பிரசுரிக்கவும்/பதிப்பிக்கவும் என் முழு மனதுடன் சம்மத்திக்கிறேன்.		☐
இந்த ஆய்வில் பங்கு கொள்ள ஒப்புக்கொள்கிறேன். எனக்கு கொடுக்கப்படும் அறிவுரைகளின்படி நடந்து கொள்வதுடன் இந்த ஆய்வை மேற்கொள்ளும் மருத்துவ அணிக்கு உண்மையுடன் இருப்பேன் என்றும் உறுதி அளிக்கின்றேன்.		☐

பங்கேற்பவரின் உறவினர் கையொப்பம் .....

இடம் ..... தேதி.....

கட்டை விரல் ரேகை ...

பங்கேற்பவரின் காப்பாளரின் கையொப்பம்

இடம் ..... தேதி.....

கட்டை விரல் ரேகை ...

பங்கேற்பவரின் பெயர் மற்றும் விலாசம்

ஆய்வாளரின் கையொப்பம்

இடம் ..... தேதி.....

ஆய்வாளரின் பெயர் .....

நோயாளியின் உறவினர் பெயர் .....

பாலினம் ஆண் ..... பெண் .....

வயது ..... ஆண்டுகள் அல்லது பிறந்த தேதி .....

நோயாளியின் உறவினர் தொடர்பு கொள்ளும் முகவரி

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நோயாளியின் உறவினர் தொலைபேசி எண்.

நோயாளியின் பெயர் .....

		பங்கேற்பவரின் கையொப்பம்/பெருவிரல் பதிப்பு
1.	மேலே குறிப்பிடப்பட்டுள்ள மருத்துவ ஆய்வின் _____ தேதியிட்ட நோயாளிகளுக்கான செய்தி நான் படித்திருக்கிறேன் மற்றும் புரிந்திருக்கிறேன்/விவரிக்கப்பட்டுள்ளேன். கேள்விகள் கேட்கவும் அனுமதி வழங்கப்பட்டுள்ளேன் என நான் உறுதி செய்கிறேன்.	
2.	இந்த ஆய்வில் பங்கேற்பது என் / என உறவினர் சொந்த விருப்பப்படியே என நான் அறிந்திருக்கிறேன். மேலும் என் மருத்துவ சிகிச்சை கவனிப்பு அல்லது சட்டபூர்வ உரிமைகளுக்கு பாதிப்பு ஏற்படாமல் நான் எந்த நேரததிலும் விலகிக் கொள்ளலாம் என்பதை அறிந்திருக்கிறேன்.	
3.	எத்திக்ஸ் கமிட்டி மற்றும் ரெகுலேட்டரி அத்தாரிட்டீஸ்க்கும் நான் இந்த ஆய்விலிருந்து விலகினாலும் தற்போதைய மற்றும் எதிர்கால இந்த ஆய்வு சார்ந்த என் / என உறவினர் உடல்நல குறிப்புகளை என் அனுமதியின்றி பார்க்க முடியும் என நான் அறிகிறேன். நான் / என உறவினா ஆய்வில் இருந்து விலகிக் கொண்டாலும் இது பொருந்தும் என அறிகிறேன்.	
4.	இந்த ஆய்வின் மூலம் கிடைக்கப்பெறும் குறிப்புகளையும் தகவல்களையும் மற்றும் பரிசோதனை முடிவுகளையும், உபயோகப்படுத்த தடை செய்ய மாட்டேன் என சம்மதிக்கிறேன். அதனால், அவைகள் விஞ்ஞானம், ஆராய்ச்சிக் கட்டுரைகள் போன்ற சம்மந்தப்பட்டவைகளக்கு பயன் உள்ளதாக இருக்க வேண்டும். இக்குறிப்புகள், அதன் விளக்கங்கள், ஆய்வுக் கட்டுரைகள் ஆகியவற்றை பிரசுரிக்கவும்/பதிப்பிக்கவும் என் முழு மனதுடன் சம்மதிக்கிறேன்.	
5.	மேற்கூறிய ஆய்வில் என் சுய விருப்பத்தின்படி பங்கு கொள்ள நான் சம்மதிக்கிறேன்	

ஆய்வில் பங்கேற்பவர்/சட்டப்பூர்வமாக
ஏற்கப்பட்ட நபர் கையொப்பம் அல்லது பெருவிரல் பதிப்பு